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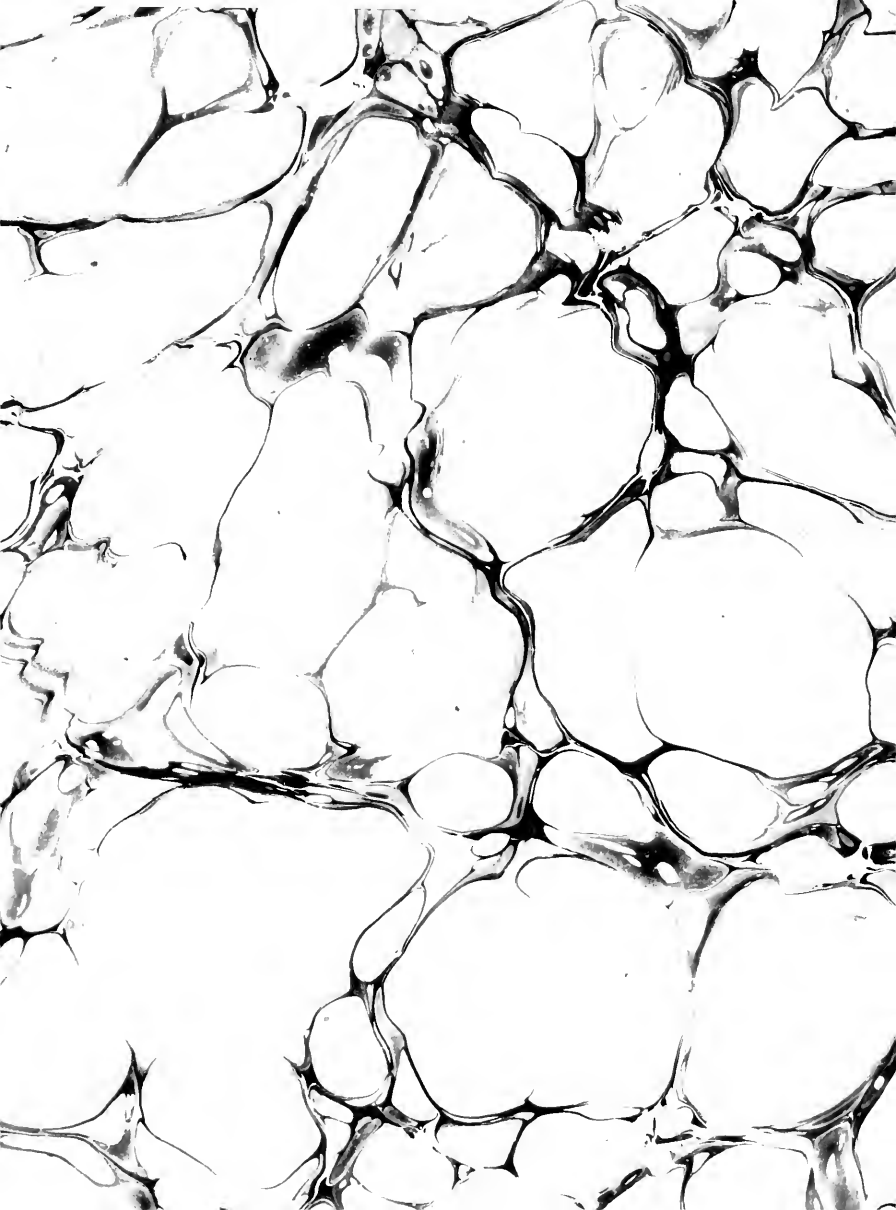
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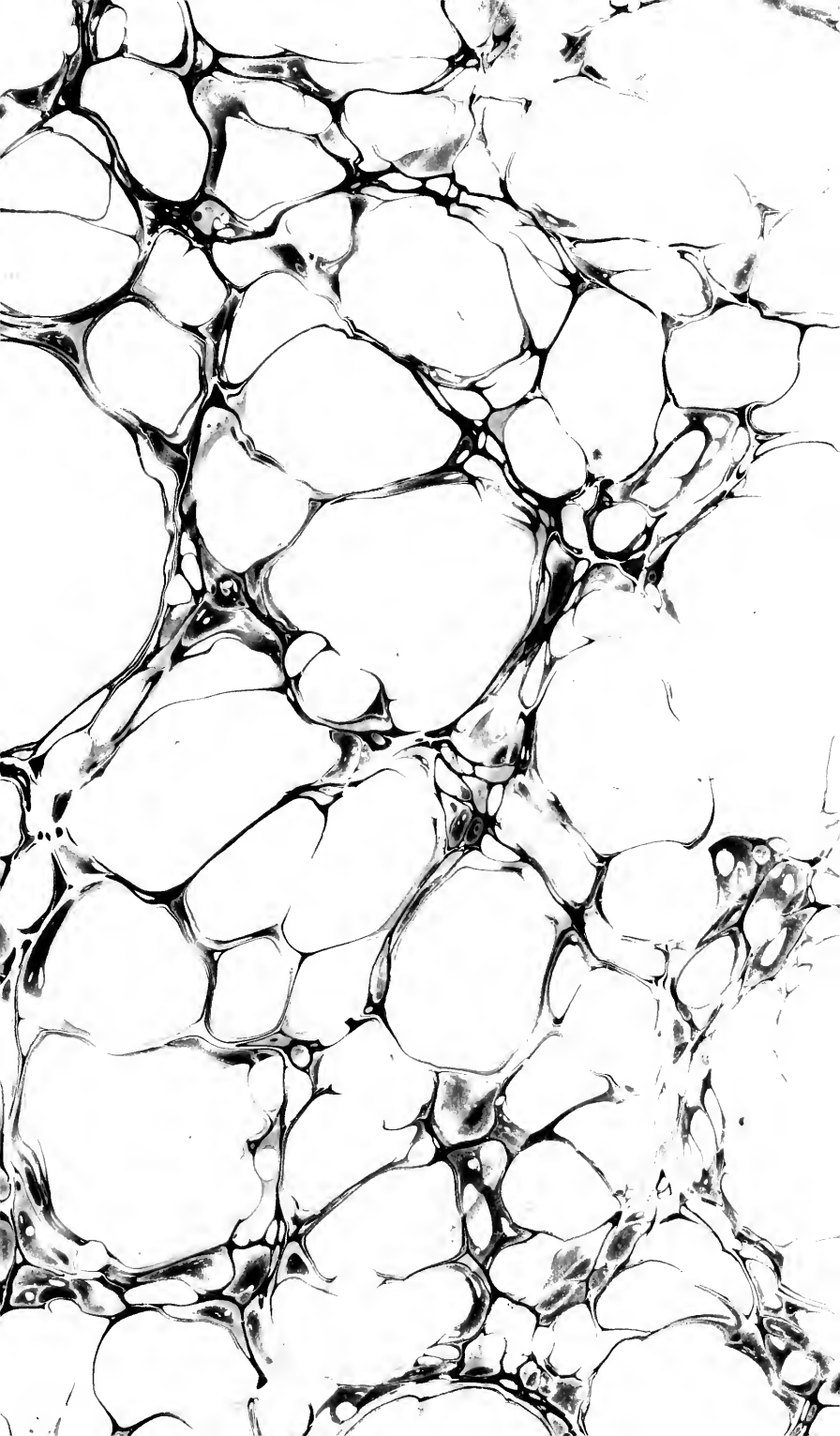
Pittsburg Academy of Medicine.

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W. W. H. H. H.



PRACTICAL OBSERVATIONS
ON
DISEASES
OF
THE HEART, LUNGS, STOMACH, LIVER,
ETC., ETC.,
OCCASIONED BY SPINAL IRRITATION:
AND ON
THE NERVOUS SYSTEM IN GENERAL,
AS A SOURCE OF ORGANIC DISEASE.

Illustrated by Cases.

Pittsburg

NC

No. 328

“It is a knowledge of the nerves of respiration, distributed on the neck, throat, and thorax, that will enlighten the Physician in distinguishing symptoms of disease.”—SIR C. BELL. *On the Nerves.*

BY JOHN MARSHALL, M.D.

PHILADELPHIA:
HASWELL, BARRINGTON, AND HASWELL.
1837.

822.0A



TO

ROBERT BURT, ESQ., M. D.,

EDINBURGH,

THIS LITTLE VOLUME IS INSCRIBED,

AS A MARK OF GRATEFUL RESPECT,

BY HIS FORMER PUPIL,

AND NOW ATTACHED FRIEND,

THE AUTHOR.

St. PETER'S-SQUARE, MANCHESTER,
12TH SEPT., 1835.

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P R E F A C E .

FOR upwards of ten years I have entertained the idea of laying before the public a few facts and observations connected with the subject of spinal irritation; but various causes combined to delay the fulfilment of my intention.

In the first place, the toils and fatigues of country practice leave a medical man little time, and often far less inclination, for literary composition; added to which, as it was a perfectly new subject, I wished previously (perhaps it will be said with *true national caution!*) to collect such a body of fact and evidence as it would be impossible for others either to overlook or gainsay.

The following pages will show, that for nearly eighteen years I have devoted myself to the study of diseases of the spine and spinal nerves, and I believe little has been published on the subject which I have not read; but in preparing these sheets for the public, I came to the resolution of avoiding, consistently and entirely, all quotations and reference to authorities, whether for or against my own system and opinions. Had I quoted one, I must, in common courtesy, have quoted all. Had I quoted for, I must in common fairness have quoted against, my opinions, and thus have swelled my little volume into one of those *wordy* and ponderous octavos which load our library shelves, but which no man in active practice can possibly find time to read, or ever does more than glance at, here and there, so as to catch the general tenor and object. Moreover, if I am right in my deductions from the facts I have stated, they do not require, and could not be benefitted by, any effort on my part to bolster them up with the opinions of others; if, on the contrary, I am wrong in these deductions, then no labour I could have bestowed, in this way, could maintain them against the influence of time and experience, whose operation as surely increases the stability of truth, as it invades and destroys that of error.

I had made considerable progress in preparing the following sheets, indeed part of them were in the hands of my publishers, ere I observed the announcement of the Messrs. Griffin's work on the same subject; but though I hailed its appearance with very sincere pleasure, as a proof of increasing attention on the part of the profession to a long neglected subject, yet I resolved not to read it till my own was entirely out of my hands; not from any disrespect to these gentlemen, but because I conceived it would be at once useful and interesting to observe what were the coincidences, and what the discrepancies, of opinion between persons who, quite unknown to each other, had at the same time been engaged in endeavours to elucidate a very perplexing and obscure branch of our science, upon principles new and hitherto untried.

Since the last sheets of the present volume went to my publishers, I have read, with no less attention than pleasure, the excellent work of the Messrs. Griffin; and I must candidly own that the coincidences I find are no less satisfactory, than the discrepancies are, *at first sight*, startling.

The most prominent of the latter is the vast dissimilarity of time occupied in the cures—"a few days" being the general term of theirs, while never in any case did I effect a cure in so short a period. Also, of their

cases the very large proportion are among women, and of a decidedly hysterical type. Whereas, of the forty I have given here, sixteen are males, and there is not one of hysteria, though in one or two there were slight hysterical symptoms. They say, page 216, that "any serious irritation of the cord can hardly exist in young girls without hysterical symptoms." I do not find this borne out by my own observation. Again, "The young, under the age of puberty, are least of all liable to be attacked by spinal irritation." And page 107, "Spinal irritation seldom affects men or children, but is continually met with in women."

Now, in the forty cases I have given, there are fourteen under seventeen years of age; but were I to take the average of *my whole experience*, the proportion of persons under this age to that of adults would be *fully* a half. I now regret that, proceeding too much upon the plan of presenting only those cases which appeared to me to possess some new and peculiar interest, I have given so few of children. This error I shall endeavour to remedy hereafter, perhaps, in a subsequent edition.

Such discrepancies are, as I have already said, startling at first sight, yet I think, on candid consideration, it is easy to account for them all. In the first place, the very circumstance of the Messrs. Griffin's cases being chiefly hysterical, accounts for the rapidity of cure. The rare occurrence of hysteria in Scotland, compared with England and Ireland, I have frequently heard remarked, and I have very good reasons for knowing the remark to be just. In twenty years' practice, I did not meet with a dozen cases in Scotland: but that this *afflicting* complaint proceeds entirely from spinal irritation, more or less transient, I have not the slightest doubt, and I should in most cases anticipate a speedy and very effectual cure from *dermal* irritation. I have always found it a great matter in such cases to give the patient something to *think about*.

With regard to the other disagreements in opinion between the Messrs. Griffin and myself.—It appears that the observations of these gentlemen on this subject have been made principally in a hospital and dispensary, the patients in which are furnished from a population of a peculiarly mobile nervous temperament, of passions no less keen than ill regulated, whose political and religious feelings are, unfortunately, in a state of extreme exasperation, and who are but too often compelled to the use of a diet the most unlikely to promote a healthy tone of the nervous system. My practice has been, on the contrary, entirely private, and among a people proverbial for their sedate steadiness of character, cool passions, and, generally speaking, regular habits; added to which, in all but one of the cases given, the *comforts*, if not the luxuries of life, were within reach of the subjects.

Allowing for the general preponderance of disease among the female sex to that which prevails among men, I cannot admit from my own experience that there is a greater tendency to spinal irritation in the one sex than in the other. I entirely agree with Messrs. Griffin, that the whole rationale of symptoms, in hysteria and many other painful uterine affections, will yet be found in spinal or ganglionic debility or irritation; but I no less confidently anticipate that the same will occur with regard to hypochondriasis, gout, renal debility, and many other diseases peculiar to our own sex, as well as all that widely diffused tribe of maladies to which both sexes are equally liable, viz. those arising from the poison of malaria, and those acute diseases ushered in by rigors and pains in the spinal column.

If I might here be permitted to make a remark, I would say, that I

think the Messrs. Griffin have greatly encumbered themselves, by the attempt to divide the pathology of the nervous system according to the arbitrary anatomical divisions of the osseous structure of the spinal column. We have only to recollect how closely united and interwoven is every part of that system, to be convinced how inevitably morbid action, to any extent, in one part, must influence every other; but more especially those which stand most closely connected with the diseased portion: and if, because in cases of spasmodic croup, asthma, or dyspnœa, we find no tenderness in the cervical vertebræ, we refrain from examining the dorsal and lumbar, I fear we shall often miss what we are in search of, even where it exists in a very high degree. To illustrate this point,—I was about two years ago consulted by letter upon the case of a young lady, of high rank and great accomplishments, who had for several years been a martyr to severe headaches, latterly accompanied by pain and sickness of stomach, frequent vomiting, loss of appetite, and impaired vision. I recommended an examination of the spine, but the medical attendant, proceeding upon the principle against which I contend, carried the examination no further than the *upper dorsal*, which, with the cervical, were found all sound, and free from any tenderness.

After the lapse of several months, the case becoming more and more distressing, I was summoned to see it, and give my opinion. On a full examination I found that though there was no tenderness of the cervical or *upper dorsal* vertebræ, *yet the four lower and the whole lumbar were in a state of acute tenderness to touch*, pressure on this portion of the column increasing the pain of head and stomach, and producing a tendency to syncope, with tinnitus aurium, gasping, and pains in the soles of the feet.

I am tempted to add another case, because from the rank and situation of the party, there is scarcely one medical man of any eminence in this country who has not been consulted, at one time or other, upon it, and many will recognize it here.

Miss R., ætat. 28, was at fourteen years of age a very stout girl, though occasionally troubled with bilious attacks. This year she became delicate, in consequence of overgrowth, having in twelve months grown about eight inches: she was seized with “a nervous fever,” which confined her to bed for a month, and left behind it a palpitation of the heart, so violent as to make the bed or couch on which she lay quiver in unison with the stroke of the heart. In six weeks she had another attack of “nervous fever,” which confined her to bed for five months. The palpitation of the heart continued to annoy her, and she also suffered from nervous startings, somewhat analogous to those of chorea. In rather more than a year the palpitation gradually left her, but the unpleasant startings continued. About the end of her sixteenth year, and be it remarked soon after the subsidence of this violent throbbing of the heart, she began to feel drawing, writing, or intense reading, excite a most painful sensation of oppression on the top of the head, accompanied with throbbing in the throat, and a sense of tightness, as if there had been a silk handkerchief closely tied round it. At these times red blotches frequently appeared transiently on the neck, face, and hands, and she had constantly a sense of weariness and debility. These symptoms continued gradually to increase for the next four years, so that in her twenty-first year she was entirely precluded by their severity from every employment or amusement, and confined almost entirely to a horizontal posture. No application to the head, or mode of treatment that medical ingenuity could devise, was omitted, but with little effect, further than that she recovered

the power of reading and writing, at intervals, while lying on the couch. In addition to all her other sufferings, she was almost constantly afflicted with inflammation of the fauces and tonsils.

I was frequently consulted by letter on the case, and in her twenty-third year I suggested that it had its origin in spinal irritation; but absence of all pain in the back, or of reference to it as a source of suffering by the patient herself, prevented my opinion being entertained, or any examination being made.

In 1833, I again more urgently stated my conviction that the whole phenomena arose from the spine, and begged that it might be examined; but this was done *only to the cervical and upper dorsal, where no tenderness was found*.

In the spring of 1834, I was summoned to Edinburgh to see this distressing case, when I found the interesting patient, in addition to all I have mentioned above, labouring under frequent attacks of sickness and pain of stomach, total loss of appetite, and extreme debility. A few months previous to my seeing her, she had, after the exertion of singing, been seized with acute, tearing pain in the left side of the chest, "as if," in her own words, "rusty nails were running into it;" and this seemed, perhaps because the most recent, to distress her more than any other symptom.

I found, on examination, the *whole dorsal and lumbar vertebræ acutely tender to touch*; and over the lumbar there was, what I have rarely observed, a very distinct pinkishness of the skin. There was no tenderness of the sacrum; but the os coccygis was so painful, on even the *most gentle pressure*, as to occasion the patient to wear a small cushion of soft cotton, to obviate in some degree the pain experienced at this spot when she assumed a sitting posture.

I have elsewhere remarked, that we are as yet but on the threshold of this deeply interesting subject of spinal and nervous irritation; and the observers must be many and acute, ere we can hope fully to explain such circumstances as that which we have under discussion; but there are few things against which we should more anxiously guard, than being trammelled in our path of inquiry by *a priori* reasonings or arbitrary conclusions.

Before taking leave of the truly valuable work of the Messrs. Griffin, I wish to state my entire concurrence in their opinion as to the non-identity of spasmodic and inflammatory croup. To me it would appear quite as reasonable to insist on the identity of cramp and inflammation *in the stomach*; complaints which resemble each other only in this—that they occur in the same organ, and that the first-mentioned may, and not unfrequently does, terminate in the latter, which I have also found to occur in spasmodic croup, in cases where no immediate attention has been paid to relieving the affected nerves from morbid influence.

As to the difference between Messrs. Griffin's remedial treatment and mine, I make no remark. It is for the profession to test and to judge on this point.

Finally, I unite most cordially in the sentiment expressed in the concluding paragraph of their preface.—Were I indeed "to write from the time the sun rises till it sets," I feel most truly that I could not express half the sense I entertain of the vast importance, and hitherto unexplored extent, of the pathology of the nervous system.

THE NERVOUS SYSTEM

AS A

SOURCE OF ORGANIC DISEASE.

I TRUST it will not be considered obtrusive, or unnecessary, if, before entering on this subject, I very slightly glance at the causes which led me to adopt particular views upon it;—the more so, as what I have to say will show that these views were not the result of any preconceived theory, but of practical experience and observation.

It is now twenty years since I entered on the active practice of my profession; all the studies connected with which I prosecuted with the keenest enthusiasm. Of these, morbid anatomy appeared to me by far the most important. I became impressed with an idea that it was the grand key to all the difficulties which meet the physician; that it would unfold the true causes of all the perplexing symptoms that had appeared during life; in short, that it would explain the whole rationale of disease. To morbid anatomy I therefore applied myself with unceasing assiduity.

In 1815 and 1816 I had ample opportunities of studying, on a large scale, the phenomena of disease and morbid structure connected with it, in the British Military Hospitals in France.

On our troops going into cantonments, the General Hospitals became the dépôts for the worst cases belonging to the Regimental Hospitals. Thus, as might have been expected, a great variety of bad cases were brought under review in a narrow compass; and every variety and shade of disease incident to a camp were to be found, at one and the same time, under the same roof. At this epoch I was appointed to a medical charge in the Hospital St. Louis at Paris, under the late Dr. Banks, and that truly scientific physician, Dr. Theodore Gordon, now of London. I am happy to take this public opportunity of expressing my obligations to both these gentlemen, more particularly to the latter. His attention was unremitting, in communicating to the junior officers the rich stores of his previous knowledge, which he brought to bear upon cases before us with a lucidness, tempered with perfect modesty and gentleness, which excited confidence in the timid, and enthusiasm in the ambitious.

The deaths amongst the hospital cases at this period were frequent; and the rules of the service imperatively requiring a *post mortem* examination, and a report of the morbid appearances, in every such case, I had here unceasing opportunities of devoting myself to my favourite pursuit; with the additional advantage of hearing the symptoms during life, and the diseased structure found after death, compared and illustrated by the distinguished individual I have named.

On retiring into private practice in 1817, I continued to cultivate the study with the same ardour; never in any instance neglecting a *post mortem* examination where it was possible to obtain it. The more assiduously I pursued it, however, the more fully did I become aware of the truth, that morbid anatomy, however indispensable to the scientific practice of our profession, never could be to me, or any other physician, the *infallible* guide to diagnostics I had so fondly hoped to find it.

Constantly did cases in private, as they formerly had in hospital practice, come under my observation, where, on *post mortem* examination, no lesion or structural disease was found adequate to account for the symptoms during life: and again, not a few presented themselves, where severe lesion and structural disease had actually existed, and no complaint had ever been made during life which could have led to the suspicion that such was the case.

Thus the mortifying conviction forced itself upon my mind, that there was a yet undiscovered source of morbid action in the human frame—a *terra incognita* of disease—a region on entering which our practice is at best but “a happy guess!”—yet I sincerely hope it only requires ardent perseverance in scientific investigation, minute and *unbiassed* observation, to explore and lay open this region as distinctly as any other department of the healing art.

That the Nervous System is the seat of this, reflection and subsequent experience have led me most decidedly to conclude. Let us here pause for one moment, and consider what that nervous system is, and from whence it springs. Let the uninitiated lay before them a plate, a *map* as it were, of the human frame—that which rises unbidden to the mental vision of every anatomist the moment the subject is alluded to. Let us observe the wonderful and close succession of nerves springing from the brain, and its continuation, the medulla spinalis. Let us remark, that the whole of these multitudinous nerves, intended to supply with nervous energy not only the whole vascular system, but the most remote and apparently independent organs, are yet with such astonishing art anastomosed with one another, by means of the sympathetic and par vagum, and the ganglionic system, that scarcely can one be injured or diseased, but, in a greater or lesser degree, the whole system must vibrate in sympathy.

It is an extraordinary, and, as far as I am aware, a hitherto almost unnoticed, law of the nervous system, that pain excited by severe pressure or other morbid action at the root or origin of a nerve, or

in any of the ganglions, is referred not to the point where the cause exists, but to the distal extremity of the offended nerve.*

A very familiar example of this law is, that of a blow or pressure of the ulnar nerve at the elbow, or of the ischiatic nerve at the nates, causing a most painful sensation, not at the seat of injury, but in the ulnar side of the hand and little finger, and in the sole of the foot; that is to say, at the distal extremities of the offended nerves. Another example, equally familiar to medical men, of this curious reference of pain to the distal extremity of the nerves, is that of persons who have suffered amputation, even at the shoulder or thigh, referring the pain they afterwards suffer in the stump to the fingers or toes, which no longer exist.

Slight and familiar as these examples may seem, they yet lead, in my mind, to the most important deductions; namely, that many diseases which we have been in the habit of calling idiopathic, meaning by this term that they originate, and have their causes, in the organ where they are developed, may not only be *simulated* by nervous irritation or debility, but that that nervous irritation or debility, continued, will of itself cause structural disease, and disorganization, at the extremities of the nerves so affected.

It has been too much the fashion to consider the vascular system as the *arcanum vitæ*, and the nervous system as a subordinate agent in the human economy. A blind adherence to this theory has cramped and misled some of our most celebrated practitioners. As far as my own observation and investigations lead, I am decidedly inclined to attribute the superiority of agency and importance to the nervous system.

I scarcely see how it can be denied that the vascular is the subordinate, since to the nervous alone it is indebted for energy and vitality, and without it would be no more than a watch without a spring—a beautiful, but useless, piece of mechanism. Such controversies, however, are better avoided, as they tend little to the practical improvement of our science. It is sufficient for my present purpose to consider the two systems as agents perfectly equal in their dependence upon each other, and so closely united in their functions, that the slightest derangement in the one cannot exist without more or less exciting morbid action in the other; and it often happens that this, by reacting upon the primary derangement, increases it in a very high degree. This view leads me to consider nervous debility as the most frequent, if not sole cause of vascular turgescence.

* “*Inflammation of a nerve does not give perception of pain in the proper seat of the disease, but in the parts to which the extremity of the nerve is distributed.*”—Sir Charles Bell on the Nervous System. Appendix, page 78.

It is but a few days ago that, for the first time, I observed this passage in the works of this truly eminent medical philosopher. And with another, which I shall quote hereafter, it forms the one solitary instance in which a fact, bearing so very strongly upon the scientific practice of our profession, has been noticed by any of our innumerable medical writers and observers. So much has the pathology of the nervous system been overlooked and neglected by the great body of the profession.

Vascular energy is wholly derived from the nervous system. If by any means the nerves destined to supply any vessel, or set of vessels, with this energy, become debilitated or destroyed, then these vessels cease to be capable of duty performing the function of propelling the fluids to and from the heart ; and therefore it inevitably follows that turgescence, more or less severe, takes place, and results in disease, depending upon the organ affected for its particular character. Thus a sudden temporary suspension of nervous energy in the vessels of the brain, rendering them for the moment incapable of propelling forward the blood, may occasion giddiness, dimness or distortion of vision, loss or faltering of speech, and all the other well known symptoms of approaching apoplexy ; and if these symptoms are neglected, this temporary becomes a lasting loss of energy, producing either immediate death, or a total suspension of vital power in the parts dependent upon the debilitated nerves.

It is well known that in many cases of apoplexy suddenly terminating in death, no morbid appearance whatever can be detected in the brain. From analogy, I am inclined to believe that there are cases, where the interruption in the flow of nervous energy has been so sudden and complete as to arrest the circulation, without giving time for any visible turgescence to take place ; and from minute and careful investigation of all that can be collected from surviving friends of the circumstances preceding such cases of sudden extinction of life, I am strongly inclined to believe that such never occur without previous warnings, however these may have been disregarded by the ignorance, heedlessness, or fool-hardiness of the individual. It must be obvious that, the vessels having once become turgid, if the nervous energy be not revived with force sufficient to restore perfectly the balance of the circulation, congestion, and in most cases effusion on the brain, must finally ensue.

If I am here asked—From what cause or causes do such sudden and violent interruptions in the flow of nervous energy take place?—I answer, simply and directly, *I do not know*. Were I to venture a conjecture, I should say, from pressure, or long-continued tension ; but I confess it *merely* a conjecture ; and I have little hope that our knowledge on the subject will ever be very accurate ; so extremely delicate is the nervous tissue, so inscrutable its utmost influences and dependencies, that they seem, in the present state of our knowledge, as it were to mock and elude our most ardent and anxious researches.

I remember, at this moment, an instance of the minute causes which will debilitate a nerve, and thereby produce local disturbance of the circulation, so as even to threaten life itself. A young lady, of a very delicate and highly irritable nervous temperament, while in the act of gathering raspberries, felt that she very slightly pricked her fore-finger ; the pain almost immediately ceased, and she thought no more about it, till some hours afterwards, in lifting a heavy weight, she felt a sudden rush of sharp pain in the same finger, darting up the arm, and continuing to thrill for some time. Swelling and inflammation of the finger almost instantly followed ; upon

which I was consulted. I could not, by the most minute inspection, discover any thorn or mark of pricking. I recommended a powerful poultice to be applied, and an anodyne to be taken. Next morning I very carefully removed the epidermis, and, *with the assistance of a microscope*, I detected a very minute spicula sticking erect in the flesh of the finger. On this being removed, the swelling of the hand and arm subsided, and all painful sensations vanished.

If, then, all this disturbance could arise at the distal extremity of a nerve, from the pressure of an offending substance so small as completely to elude the naked eye, is it not fair analogy to conclude that causes equally, or more, imperceptible to our visual organs, occurring at the origin, or in the course of the nerves, may occasion similar, or greater, disturbance at the extremities, and consequently in the circulation depending upon the offended nerves—disturbance, terminating, as this no doubt would have done if neglected, in congestion, inflammation, or local disease of some organ, probably very distant, from the real seat of injury?

That such cases do occur, the familiar instances I have already adduced, of pressure on the ulnar and ischiatic nerves producing pain, not at the point of pressure, but in the terminating branches of these nerves, sufficiently evidence. I have seen continued pressure of these nerves produce both swelling and inflammation of the hand and foot, which subsided immediately on the pressure being removed. But what should we say to the professor of the healing art, who, in such a case, instead of addressing himself to remove that pressure, productive of the symptomatic swelling and inflammation, directed his whole curative measures to these symptoms, treating them as in themselves idiopathic? Yet what would this be, but that which we see done every day, in cases differing in no respect from what I have named, except in their localities? Let the “Anomalous Cases,” which crowd our Medical Literature, answer this question. Cases, in which the unhappy patients have been subjected to the most tiresome, often, alas! agonizing succession of experimental remedies, applied to the seat of pain, without its ever once seeming to occur to the minds of those who practise them, that the thousandth part of all this trouble, applied to the origin of the nerve, where that is attainable, or to its ganglionic junctions, would be more likely to effect the end proposed—if that be to produce a cure.

We have in our own day seen a *medical man* submit to be hacked in pieces by successive amputations of his hand and arm, in the vain and fruitless hope of obtaining relief from agony evidently arising from morbid action at the origin of the brachial nerves, and which, therefore, no repetition of amputation could ever tend even to alleviate*!

What I particularly contend for is this—That irritation, or debility consequent upon irritation, of the nerves, at their origin or ganglionic junctions, will, in time, and occasionally in a very short time, pro-

* See note A.

duce actual disease of the organs dependent upon these nerves for vital energy. Whereas this disease might have been completely prevented, or a speedy cure effected, by active treatment timeously applied to the seat of morbid action. And I hold that this is more particularly the case with the nerves which ramify upon the vascular system and larger viscera.

To explain more distinctly what I mean, I shall use the liberty of giving here an abstract of a case lately submitted to me, in which, to use the words of the practitioner, "a disease of the kidneys simulated spinal irritation;" a mode of phraseology which brought to my mind the old adage about "putting the cart before the horse."

A gentleman, while skating, fell upon the ice, and received a contusion in the lumbar region, from which he did not at first perceive any great inconvenience. He shortly afterwards, however, began to find himself affected with alarming weakness of the lower extremities, and with retention of urine. The weakness rapidly increasing, almost to paralysis, the back was examined, and "tenderness to touch being found present, the case was treated as a spinal one." The remedial treatment is not condescended upon; but it is said that considerable amendment in the weakness of the lower extremities took place; in the functions of the bladder, however, no such amendment occurred. Incontinence supervened upon retention of urine, and in six weeks after the patient came under medical treatment, he expired*.

On a *post mortem* examination, the whole viscera were found in a healthy state, except the kidneys, which were "gorged with very dark blood," and several small abscesses formed in them. No morbid appearance could be detected in the spinal column; and "the spinal marrow being found to all appearance perfectly healthy," "*proves*," says my Correspondent, "that there could be no real morbid action of the spine nerves. Therefore I conceive that this forms a very curious example of *diseased kidneys simulating spinal irritation*."

From this diagnosis I beg leave completely and entirely to dissent. I conceive the *ratio symptomatum* in this case to be, that, at the period the patient fell upon the ice, the renal nerves received an injury or concussion so severe as shortly afterwards to produce paralysis of them.

The blood-vessels of the kidneys, and those organs themselves, being thus deprived of nervous energy, became incapable of duly performing their functions. Hence the engorgement of "dark

* As the mode of treatment is not condescended upon, we cannot judge whether it was judicious or not, and, indeed, it appears probable that disease in the kidneys had made considerable progress before medical advice was taken.

In such a case, I should have been inclined to exhibit leeches very freely over the whole lumbar region, and also frequent and long-continued frictions, with some stimulating liniment. At the same time, if the patient's constitution could stand it, I would have resorted to general depletion, with a view to relieve the system.

blood," and the breach of structure, found after death. The assertion that the spinal chord being found "to all appearance healthy," is an irrefragable proof that no real spinal irritation could have existed, is not borne out by fact.

The spinal marrow, destined to be the grand channel through which vitality and energy flow from the brain to the system in general, and any lesion of it being followed by the most lamentable effects upon the frame, has, like its source the brain, been guarded by our benevolent Creator with a jealous care, bestowed upon no other tissue of the body. Not only is it lodged in an osseous yet flexible covering, adapted with the most beautiful and divine skill to protect it from injury, but it is endued with a power, almost peculiar to itself, of resisting the attacks of morbid action going on in its neighbourhood, and continues to perform its functions, and retain "a healthy appearance," when all around it is destruction and disorganization.

I might produce many cases to support me in this assertion ; but I select the two following, because they not only bear very strongly on the point under discussion, but equally so upon another fact I have stated above—namely, that the seat of suffering is frequently at the distal extremities of nerves, while the real and only seat of morbid action is at their origin or ganglionic junctions.

C. E——, Esq. returned to this country in 1818, from Guyana, where he had resided for thirty-seven years. Having a very great taste for the study of Natural History, and delighting, like the ornithologists Wilson and Audubon, to follow the objects of his admiration into their native haunts, and there study their habits, and enrich his collection with their spoils, he frequently spent months at a time in the woods of Guyana, living almost in a state of nature. He was tall—must have been a strikingly fine looking man in his youth ; still retaining, even in advanced life, marks of a robust and vigorous frame and constitution. When I first became acquainted with him, in 1819, his health could not be called decidedly *bad*, yet it was far from being good. About fifteen years previous to his leaving Guyana, while engaged in subduing an insurrection of the runaway Negroes, he received several slugs in his body ; two of which he alleged remained unextracted ; and to the presence of these he ascribed all his subsequent sufferings and bad health. One of them was lodged in the left lumbar region, and could be felt by the finger, though lying considerably under the surface. The other, he insisted, had entered the left side, and, following the course of the rib, finally lodged near the spine, close to the seventh dorsal vertebra. In this idea I have great reason to suppose he was deceived, and that the uneasy feelings which he ascribed to the presence of this foreign body, were in fact the commencement of the fatal malady which at length terminated his life. I am the more inclined to entertain this opinion, from having learned from himself that, at the very period when the wound was received, he underwent the most extreme fatigue of body and anxiety of mind, as to the result of the insurrection. At all events,

he never afterwards enjoyed the same unbroken health he previously had done. He frequently complained of head-ache, nausea, and want of appetite; and he began to experience attacks, which gradually increased in frequency and severity, of numbness, cramp, and tremors of the lower extremities, especially of the left. Sometimes these assumed the character of violent spasm, attacking him so suddenly as more than once to occasion his falling to the ground. At the same time the agony of pain darting down the limb was so great, that when attacked, as he frequently was, while seated in company, or walking with a friend, it was with the utmost difficulty he suppressed a scream. The only relief he had was to grasp the muscles of the thigh as tight as possible with both hands, and in a few minutes it passed away as if it had never been. At these times the voice became tremulous, and the speech faltering, and continued so for a longer period than the cause lasted: for the last five years of his life, this symptom became constant, and so severe as to make it difficult to understand what he said.

Another form of suffering, evidently springing from the same source, was, that suddenly, while perfectly free from pain of any sort, often when enjoying himself with the utmost hilarity, he felt as if suddenly struck on the left side of the chest, over the sternal extremities of the fifth, sixth, and seventh ribs, by the fist of a strong man, or sometimes more as it were by electricity, occasionally producing most acute anguish, and leaving, as it subsided, a sense of burning—to use his own words—“as if the part had been seared with a red-hot iron.” At times this attack in the chest, and in the limb, were simultaneous; and nothing was more deplorable than the sight of the patient at such moments. Whatever action he was engaged in was arrested—whatever his hands held was dropped to the ground, and the hands passed with rapidity, and every expression of agony, from the chest to the limb, and back again.

These attacks, at first momentary, and occurring at distant intervals, at length increased in frequency and severity, so as to make life itself a burthen to this excellent and amiable man.

In 1823, by his own urgent request, but with little hope on my part of affording any permanent relief, I extracted the slug from the lumbar region. He also wished me, at the same time, to attempt the removal of the one he supposed to be lodged near the dorsal portion of the spine; but this I positively declined, for reasons which the sequel of the case will show.

He certainly did experience considerable temporary relief from the removal of the one in the lumbar region—relief which made him the more impatient of enduring the supposed presence of the other. Being this year in London, and passing home through Birmingham, he there consulted a surgeon recommended to him by some of his friends. This person subjected him to what he described as a very minute examination, and manipulation so rough, that Mr. E. felt the effects of it for weeks after. The surgeon announced, as the result of this examination, that he distinctly felt a foreign body, the immediate removal of which he recommended.

I too had very distinctly felt this "foreign body," if it was to be called so, at the period I operated on the other, but I did not conceive it a substance to the removal of which the knife could be prudently applied. On Mr. E.'s return home, he was more than ever urgent I would attempt the operation. With a view to satisfy him, I made another examination, and greatly to my surprise I found it had completely disappeared, a circumstance for which I frankly confess I never was able to account, even on my own theory. Mr. E. himself supposed that the Birmingham surgeon had by his rough treatment pushed the slug into the interior of the chest, during his manipulation: but though I bore this in mind during the subsequent *post mortem* examination, no such body could be discovered.

Not very long after his return home, he was seized with one of the spasms described, while in the act of mounting his horse, and was in consequence thrown upon his back with great violence. On recovering from the shock, he did not appear to have sustained any material injury; but from this time forward there was a rapid increase of suffering. The spasms of the limbs, and the sensation of receiving violent blows on the anterior part of the thorax, became much more frequent. The burning pain in the chest became permanent; and so severe, that the poor sufferer often awoke from sleep screaming for assistance, from the idea that he was struggling through a house on fire, or was from some cause enveloped in scorching flames. His sufferings were sometimes—not always—mitigated by the application of leeches, of anodyne, and cooling lotions, and the habitual use of the Black Drop; but no remedial measures employed gave more than a temporary relief. In 1824 his sufferings were aggravated, and his general health greatly reduced, by a carbuncle between the scapulæ. It ran its course, and was opened in the usual manner; but though it healed kindly, his constitution never again rallied; and the sufferings I have described above continued to increase. Something less than two years after the formation of the first carbuncle, he told me he feared that another was about to form, as he had lately felt an indescribable, but severe uneasiness, and strong pulsation, in the upper part of the back, as often as he leant it upon his chair when seated. This pulsation he had occasionally complained of from the time of the first carbuncle, and he supposed that it arose from some effect left by it; but, coupled with an increasing irregularity of pulse, and the other symptoms detailed, it confirmed the impression long since made upon my mind that my patient laboured under diseased heart—probably ossification of the valvular apparatus. In examining the back, with a view to discover if any carbuncle was in progress, I now, however, discovered a small pulsating tumour, situated at the dorsal and sacral angle of the left scapula: the pulsations of this tumour were simultaneous with those of the heart and radial arteries;—too evidently indicating the existence of aneurism of the thoracic portion of the aorta.

By my own desire, I had, soon after, a consultation with my friend Dr. Burns, of Glasgow, upon the case. He entirely coincided in my

view of it: but while we were examining the patient, we observed a circumstance which seems curious enough to deserve mention. On drawing a silk handkerchief along the left side of the thorax (over the spot where the burning sensation was complained of,) from the dorsal to the sternal aspect, no unpleasant sensation whatever was produced; but the moment this movement was reversed, by drawing the handkerchief from the sternal to the dorsal aspect, it elicited a scream of agony from the patient, and caused him to start from one side of the bed to the other: however lightly the handkerchief was applied, the effect was the same; causing such intolerable pain and irritation as made the sufferer intreat us to desist.

Minutely to detail the progress of this melancholy case, from this period to its fatal termination, would but be to repeat what I have already said. The tumour gradually increased greatly in size, as did the sufferings of the patient both in constancy and intensity. Yet I would here wish to press upon the attention of my reader, that many of the symptoms were such as could not be supposed to arise from simple aneurism of the aorta. The spasmodic agony in the limbs became nearly permanent; the feet were constantly cold, accompanied with obtuseness of sensation; the same twitching pains, accompanied with severe tremors, extended to the arms and hands; and, as I have already mentioned, the voice was almost inarticulate. Severe pain across the brow, occasionally extending over the whole head, was almost constantly present. Indigestion, and constant loathing of food, filled up this catalogue of complicated ills, under which his powerful constitution languished till November, 1827.

During the life-time of this amiable man, he had exacted of me a solemn promise that I would, after his death, make a most minute examination of his body, with a view to throw light upon the cause, or causes, of his extraordinary and protracted sufferings; and thus tend to the advancement of medical science. In complying with this request, I must here acknowledge my obligations to Mr. Buchanan, of Dumbarton, for his able assistance, being myself unable to perform the dissection, owing to an attack of erysipelas in my left arm.

On examining the viscera of the abdomen, we found them all perfectly sound. The lungs were healthy, but the left was pressed almost flat between the pleura costalis and the aneurismal tumour, which nearly filled the left cavity of the thorax, occupying the arch, and the greater portion of the thoracic aorta.

On removing the tumour from the thorax, we found that the vertebral extremities of the ribs, from the 4th to the 7th, were entirely obliterated; as also were the sinistral portion of the bodies of the 5th, 6th, and 7th vertebræ, laying the theca vertebralis entirely bare along the whole body of the 6th vertebræ; so that at this point the medulla spinalis must have been directly pressed upon by the tumour, and constantly exposed to its pulsations; yet it exhibited no morbid appearance whatever.

The tumour itself was chiefly composed of a light grayish substance, easily divisible into layers, which greatly resembled half-

dressed leather in appearance and toughness. In the body of it we found several detached portions of the ribs, lying in irregular positions. The whole internal coat of the aorta was ossified, exhibiting an appearance as if covered with fish-scales. Considerable portions of it were so involved in the tumour, and so altered in structure, that but for this quantity of ossific matter, we should have been unable to trace it. The heart was enlarged, and pushed almost wholly under the sternum, and its walls thicker and firmer than usual; but no portion of ossific matter was discoverable in it, save at the tips of the tricuspid valves. The columnæ carnæ were remarkably firm.

Though examined with most particular attention, no morbid appearance could be detected, not even the slightest blush of inflammation, at the anterior part of the thorax, where the acute and agonizing sensation of burning pain had been experienced for so long a period during life.

John Thomas, a Negro; his age could not be exactly ascertained, but it must have been very great, as he mentioned that when taken prisoner of war, and sold into slavery, from his native country of Foulah to the West Indies, he was a grown man; yet some of his recollections of circumstances in the history of the West Indies went as far back as seventy or eighty years. He applied to me a few months after the death of Mr. E., and the striking coincidence of the symptoms he laboured under, and the sufferings which he described, with those I had so recently witnessed, in that gentleman's case, led me at once to the conclusion that his disease was aneurism of the descending aorta; and that the aneurismal tumour was pressing extensively upon the spine, though on a lower portion of it than in the preceding case.

He complained of severe burning pain on the left side of the linea alba, from the umbilicus to the ensiform cartilage; covering a very considerable portion of the left, but never at any time extending to the right, side of the mezial plane; and also of the sensation of receiving sudden and violent blows upon the region of the stomach, where the sense of burning most prevailed. The same peculiar irritation was produced as in Mr. E.'s case, by drawing a silk handkerchief from the sternal to the left dorsal aspect.

At the time he first applied to me, I could not, on the most careful examination, detect any tumour externally; but in the course of the summer, one which pulsated simultaneously with the heart and radial arteries, gradually developed itself in the upper part of the left hypochondriac region, immediately under the short ribs, and extending from the spine. It increased with amazing rapidity, and in a short time occupied the whole left side of the abdomen, reaching below the crest of the ilium. From this time till he expired, which was about six months afterwards, the agonies this wretched man endured were such as to baffle all description. Pains, resembling those of the most acute rheumatism, but alternating with cramps and spasmodic twitchings, racked his limbs; the shrivelled and palsied

looking extremities of which were at all times deadly cold. Severe head-ache was constantly present, which he vainly strove to relieve by a tight bandage round the brow.

I have already mentioned that Mr. E., from the most enlightened and benevolent motives, gave me his dying injunctions to examine his body; and it is remarkable that this poor uninstructed Negro did the same—"Ah, Massa, Massa!" he often repeated to me, "when-ever poor John dead, you open him's inside, and you see what dis terrible ting is, and you know how cure other body."—About thirty hours after death had released him, I accordingly examined his body. On laying open the cavity of the abdomen, the viscera were found upon the whole healthy, but pushed over to the right side, and the aneurismal tumour occupying the left hypogastric, lumbar, and iliac regions. The tumour consisted of solid matter, of a buff colour, which could be separated into distinct layers resembling wet leather. A small quantity of coagulated blood was found at the inferior or sacral aspect of the tumour; and in that part of it which had occupied the cavity of the ilium, detached pieces of the cartilaginous parts of the short ribs were found imbedded. As far as I was able to trace the aorta, it was ossified throughout. On prosecuting the examination into the thorax, the ravages were found to be very great. The pulmonary vessels contained a considerable quantity of dark blood. The heart was pushed completely under the sternum; was small, but in no other way remarkable. The left lung was pressed flat against the mediastinum, and anterior part of the chest, by the enlarged aorta, which occupied the whole left cavity of the thorax; and, in descending into the abdomen, had carried the short ribs along with it, dislocating them at their heads, where they join with the dorsal vertebræ; and, by its perpetual pulsations, it had extensively absorbed the bodies of the dorsal vertebræ themselves; at one part, along the whole length of the 7th: the medulla spinalis was denuded even of the theca, and lay perfectly exposed; but, as far as we could ascertain, there was no breach of continuity in the medulla itself, nor did it appear otherwise than healthy.

Mr. E. had exacted a promise from me that I would faithfully commit to the grave every part and portion of his body after I had examined it; but the poor Negro felt no such refinement, and I therefore felt myself committing no breach of trust when I secured and preserved a part of the spinal column, including the diseased vertebræ, and also a part of the tumour, to show its curious laminated structure. These preparations I left in the possession of a medical friend in Scotland*.

In the foregoing pages I have so much anticipated all that can be said on these two cases, that little remains for me to remark here. I introduced them, as I have already said, for the purpose of showing that, since the spinal marrow was found perfect, and free from any morbid appearance, in a situation where it was not only surrounded

* Mr. Morgan, of Port Glasgow.

by structural disease, but actually exposed, denuded of its natural coverings, to the constant action of the tumour, which appeared to have been the agent in destroying these structures, it follows, that no such argument as my Correspondent adduces can be fairly drawn, from the same circumstance occurring in less severe cases. For my own part, I am most fully convinced that irritation of the nervous tissues can exist in a very high degree, without the medulla showing, in any way perceptible to the visual organs, that it has at all participated in the disturbance.

I must also be permitted here to call particular attention to other points in these two cases, where there prevails a no less remarkable discrepancy between the symptoms during life, and the morbid appearances found after death.

Could any one, judging *à priori*, have anticipated that, where no pain whatever was complained of in the dorsal or lumbar regions, until a very short period preceding death, that there would be found destruction and disorganization as complete and violent as if it had been the work of a hatchet, or a gouge and mallet; while in the sternal region, so long the seat of agonies which none who witnessed can even yet recollect without a shudder, no trace whatever of morbid action was discernible?

In the lower extremities, too, where both patients experienced the most excruciating torments, no morbid appearance existed, if we except that the flesh was shrivelled, and the circulation languid. If these cases are not considered corroborate of the theory I have ventured to advance, I have little to hope from those I now proceed to lay before the reader.

ON

DISEASES OF THE HEART

AND

LARGE BLOOD-VESSELS SIMULATED BY NERVOUS
IRRITATION.

IT is now several years since the two greatest anatomists of the present, or of any age, gave to the world the beautiful results of their laborious investigations of the Nervous System;—investigations whereby they have brought order out of confusion—light and simplicity out of perplexity and contradiction; and demonstrated that in this, as in all the other departments of creation, there prevails the most admirable adaptation of means to the end proposed.

It will be remarked, from the dates of the cases now to be detailed, that Sir Charles Bell and I were, nearly about the same time, engaged in developing similar ideas; but while he has been pursuing his brilliant career as an anatomist, I have, in a far more humble sphere, been following out the practical results of these views, by a careful and unremitting attention to the phenomena of disease, as it occurred in my daily practice; and I have, I venture to hope, not been altogether unsuccessful in opening that path of usefulness towards which, he justly laments, in his last publication on the subject, that his medical brethren have been so slow to perceive his labours tended.

My views on the subject of the nervous system were in no degree the result of Sir Charles Bell's or Signor Bellengeri's; but when I became acquainted with the works of these distinguished men, it was most cheering and satisfactory for me to find that the inferences I had drawn, from practical experience, were so completely confirmed and elucidated by the anatomical discoveries made, and so luminously detailed, by them. I am ashamed to say at how late a period it was that, amid the laborious occupation and fatigues inseparable from country practice, I became acquainted with their works, the immense practical value of which appears to me as yet very inadequately appreciated by our profession in general.*

* See Note B.

To enter here upon any discussion or description of the origin of nerves ramified upon the heart and larger blood-vessels, would be superfluous. I have already repeatedly expressed my conviction, that morbid action at the root or ganglionic junctions of a nerve excites pain, disturbance in the circulation, and, ultimately, disease in the structures upon which the extremities of that nerve are ramified; and it is therefore obvious that to the primary seat of morbid action, as nearly as that is approachable, our remedial treatment ought to be applied. These views and opinions on pathology led me in all doubtful cases, to examine the spine, and the seat of the principal nervous tissues; and apply such external remedies as seemed adapted to remove from thence any cause of morbid action, as far as that was attainable.

So far from finding the spine, or spinal nerves, uniformly the seat of this, I have very frequently met with cases, as Case third, where a very high degree of organic disturbance existed, yet there was present little or no irritation of the spine; no complaint of pain there having ever been made, and manipulation causing no distress: nevertheless a careful and persevering application of local remedial treatment, terminating in a perfect cure, gave irrefragable evidence that the source of disease had been rightly apprehended; but that the sympathetic,* *par vagum*, or phrenic nerves and not the spinal, had been the primary seat of morbid action.

It has been most successfully demonstrated by Bichat and Sir Charles Bell, that the system of sympathetic nerves* (as if in scorn of their name,) is incapable of conveying the sensation of pain. "They may," says Sir Charles, "be cut or pinched in the living body without causing pain;" but it does not follow that they are therefore incapable of being irritated, debilitated, or diseased, so as to impair their energies, and render them a certain source of disease in the organs dependent upon their influence for health and vitality.

To the uninitiated it must sound strange to be told, that were those nerves, through which alone all the delicate and delightful perceptions of external nature are conveyed to the brain, viz., the optic and acoustic, drawn like fiddle-strings through the finger and thumb of the operator, it would cause no pain whatever to the individual to whose eye or ear these nerves were attached.

He who has felt the intense agony caused by a minute atom of dust in the eye, or the presence of a tiny insect in the ear, will be apt to exclaim, "Impossible!" till told that a wise and beneficent Providence has assigned to these two orders of sensation separate and appropriate channels of communication, one or other of which may be diseased, or even destroyed, without in the least affecting the other. And let it ever be remembered, that the same systematic arrangement pervades the whole economy of the human frame, no nerve or nervous filament performing more than a single office.

Even the heart—on every motion of which hangs life itself—

* See Note B.

which vibrates in the bosom to every passing current of feeling, like the aspen leaf to the summer air—even the heart is insensible to pain, in the common acceptation of the word. It may be handled, pressed, or even have pins pushed into its substance, without the individual to whose body it belongs being informed, by any other sense than that of sight, that such is the case. Yet there is, as it were, a net-work of nerves ramified upon the heart and large blood-vessels proceeding from it: and as we every day see irritation of the optic and acoustic nerves take place, why should we have any difficulty in understanding or believing that the same may occur in those nerves destined to supply the heart and its appendages with health and energy for the due performance of their own peculiar functions; and that disturbance in these functions, and finally disease of the organ itself, must result from such causes! And if it be acknowledged that such can be the case, does it not follow that nothing can cure that irritation or debility in the nerves, and prevent its terminating in actual organic disease, but remedies, adapted to subdue it, applied to the nervous tissues as nearly as we can obtain any communication with them?

Although the spinal nerves be not the uniform, or only, seat of morbid action, they certainly are so in a great majority of cases; and even when not so primarily, they seldom fail to sympathize, as might naturally be expected from their frequent junctions with the sympathetic. This holds more particularly true in the case of young persons.

It will be remarked that, of the following cases of pseudo disease of the heart, five out of eight were under twenty years of age; and that rapid growth took place during and after the progress of the case.

It is admitted that the growth of all young animals, particularly when it is very rapid, is accompanied more or less with an inflammatory diathesis; and previous to the osseous deposit, so urgently required by nature, acquiring the firmness of bone, it is in fact but a cartilaginous substance, sufficiently ductile to receive, and retain, any prolonged impression made upon it. Hence arise the numerous cases of incipient distortion of the spine, which come under the notice of the physician at the present day.

The evil case of our female children, closely confined by the inexorable demands of the modern school-room, for many hours each successive day, to the same unvarying attitude, is aggravated by the weakening and distorting effect of tight-laced and much-boned stays, and all the other inhuman inventions of a female school,—not to mention the misdirected efforts of mothers and governesses to repress the health-giving exuberance of childish romping and frolic, because modern refinement has ordained that even for a child to be *natural* is to be *vulgar*!—The half-formed and irritable vertebral column, thus tasked beyond its strength, and worn out by the painful exertion of continuing so long in one attitude, swings to one side or other (since to stoop forward is forbidden), most commonly to

the left side; the interosseous cartilages at some point, generally at the dorsal or lumbar, yield to the pressure on that side, and, as the bone hardens, the twist in the figure becomes permanent.

Frequently, by dint of scolding, the poor child is compelled to straight itself by a painful effort over weakness, and the spine then swinging to the other side, a similar pressure of the cartilages takes place there, and a double curvature of the column occurs, the whole length of the spine exhibiting, when viewed from behind, the figure of an Italic *f*. In most cases it happens, all the while mischief of such magnitude is going on, that mothers or schoolmistresses merely wonder why the poor darling is "*so languid*," and why "*her dress will always hang off one shoulder*;" and the tailor frets in vain at finding that one side of little master's new surtout is, "*all in wrinkles*," while the other "*sits quite smooth*," though both were cut exactly alike.

Were personal deformity the only result of such occurrences, it would be, comparatively, of less importance; but, in the majority of such cases, if not met by early and judicious treatment, lasting ill health, or premature decay, are the disastrous consequences.

When we recollect that a succession of nerves, as close and regular as the threads forming the web of a web, spring from the spinal marrow, and pass out through the vertebral column, on their way to animate every part of the human frame; it must, one would think, become obvious to the most stupid or most ignorant, that the smallest degree of permanent curvature in the spine, no matter in what direction, must occasion pressure, and hence debility or irritation, of the nerves at that particular spot, rendering them incapable of conveying to the organ, or, it may be, part of the vascular system, they are destined to supply, the quantity of energy requisite to maintain it in a state of perfect health and activity.

As the curvature increases, the osseous frame of the body becomes twisted. The ribs attached to the vertebræ are bent downwards, till they may be felt pressing upon the crest of the ilium on one side; and before this can happen, the scapulæ and clavicle on the same side are also pulled awry. Thus the large viscera of the thorax and abdomen are displaced, and pressed upon; and irritation is extended to those nerves more immediately ramified upon the lungs and heart, the stomach, diaphragm, and liver. In some cases, only one or more of these viscera may be involved in the morbid action; but in many of the cases which follow, the reader will observe that they were all more or less affected; and that even amaurosis, and impaired vision, were present; which, I entertain no doubt, arose from sympathetic irritation of the branch of the par vagum which goes to the eye, thus connecting it very intimately with structural derangement in the stomach, heart, and lungs.

It requires no argument to convince the *true* anatomist, that hardly can one of the larger viscera of the thorax or abdomen experience a high degree of irritation, without the rest more or less participating in the disturbance. For instance, if the diaphragm is deranged in

the regularity of its functions, the heart and lungs cannot escape ; not only from the nervous bonds which so closely unite them, but from their functional dependence upon each other. Still more decidedly may we say the same of functional derangement of the stomach, liver, or uterus.

Hence arises a great difficulty in forming a correct diagnosis, as to what particular sets of nerves are the primary seat of irritation, and what others are merely sympathetically affected.

I have found, however, that this difficulty yields in a great degree to persevering study of the subject, to an intimate knowledge of the anatomy of the nerves, and to increasing attention to the veriest minutiae of symptoms ; besides which, we have this consolation, that if we are not at first successful in applying our remedies exactly to the seat of the diseased nerves, they are yet all so closely united by their ganglionic junctions, that they derive a secondary degree of benefit from remedial treatment directly influencing tissues which are only sympathetically affected. In fact, in the present state of our professional knowledge, secondary influences are what we lean upon in a large proportion of the cases which come under treatment. It is a melancholy fact, that the stomachs of our patients are daily and hourly made the receptacles for loads of medicine, of which the effect can only be secondary ; and even that in a very obscure degree.

That I have not been biassed in my views of disease by any fondness for a particular theory, the following cases will abundantly testify. In fact, on the contrary, I have often felt biassed the other way : as an instance of which I may remark, that the first and second cases were under my care at the same time ; but in the first, I was blinded by a persuasion that organic disease of the heart was not only a natural, but almost inevitable, consequence of the previous circumstances. Therefore, had the patient been mine alone, I would, in all probability, have allowed the nervous irritation to go on unchecked, till it terminated in structural disease. In the second case, no such bias existed in my mind—I saw the case as it really stood, and acted accordingly. Often, in reading over my notes after the cases were closed, I have marvelled how it had happened that I was for one moment at a loss how to decide on their exact nature when first called to them.

CASE FIRST.

1821.

— — — — —, æt. 21, a young lady of a small, well-formed figure, and florid complexion. Until her 18th year, she enjoyed the most robust and unbroken health. At that period she caught cold, and her complaint assumed somewhat of a phthisical tendency. She underwent a variety of treatment, and ultimately recovered, and has enjoyed very good health during the summer. In September, however, she was suddenly attacked with inflammation of the bowels

and pleura; in a few hours the brain also sympathized, and strong delirium came on. The disease was with great difficulty subdued; but her convalescence was by no means satisfactory; and in the end of October she was again attacked with phrenitis. Weak as she was, it became necessary to adopt the most active treatment. The head was repeatedly blistered and leeches, but apparently with little effect. On the 28th of October I saw her, as I then thought, for the last time. She was, to all appearance, dying; and nothing more could be done, as depletion had been carried to the very utmost pitch that prudence would warrant, and every other remedy was exhausted. I afterwards learned from a medical friend, that a few hours after I left her, a profuse, cold, clammy perspiration, the usual precursor of dissolution in such cases, came on, and in about half an hour she sunk into a state of insensibility; which all around her, save one individual, looked upon as death. The features wore all the peculiar characters of death—the breath and pulse were gone—not even the faintest throb of the heart could be felt—the whole surface of the body was cold and clammy; the jaw dropped, and the joints of the upper extremities stiffened—yet no argument would convince this individual that the cherished object of her fondest affection had indeed expired—and she persevered in using every means of resuscitation. For more than an hour these were wholly unsuccessful; but at length a very slight twitch in one of the fingers of the left hand was observed. Symptoms of re-animation gradually increased, and at the end of six hours, respiration and the motion of the heart were fully re-established; but the prostration of strength was so great that the eyes remained shut for several days. The power of speech was gone, and that of deglutition during the same period so imperfect, that only liquids in very small quantities, could be got over. The emaciation was so great, that more than one medical gentleman who saw her at this period pronounced, that from *that cause alone* it was impossible she could recover.

Convalescence was, however, by slow degrees,—and, I must add, by care and attention on the part of her friends, enthusiastic beyond all I have ever witnessed,—satisfactorily established; so that by the end of December she could sit up for some hours at a time, and even walk across her room with a little assistance.

In this favourable state of the case, a new and formidable disease seemed now to develop itself. While the patient was perfectly quiet and at rest, the pulse was regular, from 56 to 60 in the minute; but motion or exertion of any kind, even speaking a few words, raised it to 100 and 140. If the cause of agitation was great or continued, it exceeded counting, and frequently intermitted; the patient complaining, at these times, that she felt “as if the heart filled the whole cavity of the chest, and beat against the sides of it all round;” when the hand was placed above the right clavicle, the scapula, or the right side of the thorax, the throbbing of the heart could be more distinctly felt than on the left side of a person in ordinary health. I have frequently, at these times, observed that the

pulsations of the carotids could be counted from the opposite side of a table. The face became flushed, the eyes prominent, the temporal arteries enlarged, and the patient complained of a distressing sense of suffocation, "as if she had run till she was quite out of breath." On the subsidence of these attacks, she was left weak and exhausted. She was unable to lie upon the back, as this position instantly produced palpitation, and a sense of suffocation, which she described as resembling the feelings caused by nightmare. While in bed, she was supported in a half sitting posture; and so great was her dread of the recumbent position, that she was in the habit of entreating those around her to watch, while she slept, that she did not slide into it.

Auscultation only served to confirm my opinion that some organic disease of the heart, or large blood-vessels, was present. The father of the patient, a most observant and talented physician, who had the experience of more than half a century, at first agreed in this view of the case; but shortly afterwards informed me, that, having most attentively watched the patient for some weeks, he was inclined to think that there was no organic disease of the heart, but rather that the symptoms I have detailed arose "from peccant matter pressing upon the nerves of the heart and larger blood-vessels," and that he was resolved to subject the whole of the dorsal and cervical vertebræ to friction with the antimonial ointment, till a very copious eruption was produced; which he confidently anticipated would soon mitigate the urgent symptoms, and finally produce a cure.

It is notorious that young physicians and old ones are apt to differ in their views. I was no convert to the doctrine of "peccant matter;" and I most candidly acknowledge, that I was inclined to think my venerable friend had, in forming this opinion, listened more to the affection of the father, than the acuteness of the physician! The patient was, however, immediately subjected to the application of ointment of the Tartrate of Antimony, of more than usual strength, three times a day. She suffered greatly from pain in the parts, and severe sickness at stomach; but in the evening of the second day, the eruption made its appearance very copiously, attended with a plentiful discharge of *purulent matter*. The urgent symptoms, from this time forward, gradually subsided, and at the end of three weeks had entirely disappeared. The patient finally recovered her health; and it is satisfactory to state, that she is still alive—married—and the mother of a family.

CASE SECOND.

July, 1821.

P. H., ætat 21.—Previous to his present illness had always enjoyed excellent health. About ten months ago, he went to Liverpool, as a clerk in the employ of Messrs. Matthie & Co., of that town. Not long after he entered on this situation, he began to complain of great weakness, difficulty of breathing, and violent pal-

pititation of the heart on taking any fatigue. The appetite for food gradually declined, the digestive powers became impaired, and his flesh fell away rapidly. By the advice of his employers, he consulted the late Dr. M., of Liverpool, who, on hearing his statement, advised that he should immediately return to his friends, as he was evidently labouring under an organic disease of the heart, which being in its own nature incurable, he could only be expected to become very rapidly worse. Such was the report made to me by the patient and his brother, when they waited upon me a few days after his return to Port Glasgow.

I was, at that time, requested occasionally to visit the patient; not with any hope that he could be cured, but simply to see if any thing could be done to alleviate his sufferings, and "smooth the passage to the grave." Previous to my seeing him at all, I was told, that on his way home he had consulted my friend Dr. Burns, of Glasgow, who gave no decided opinion on the case, but ordered a blister to be applied to the back.

His appearance, at this time, was ghastly in the extreme. He was much emaciated; the skin was sallow and shrivelled; the features sharp, and the expression of countenance anxious and disturbed; debility very great. He had severe pain of chest; frequent short dry cough; no appetite; the bowels torpid; the urine of a most peculiar and fœtid odour, depositing red sand on cooling. He was languid, and extremely disinclined to exertion of any kind, as it occasioned great increase of suffering; walking quick, ascending a stair, or any acclivity, occasioned such violent palpitation at the heart, and such a sense of instant suffocation, as compelled him to sit down every few minutes when engaged in any such exercise. From the first time I saw him, I was not quite satisfied of the correctness of Dr. M.'s diagnosis; and being struck with something in the air and attitudes of the patient, which gave an impression of deformity, I made a very thorough examination of the chest and spine. The action of the heart was very strong; so much so that the pulsations were distinctly visible to the eye through the dress; to the ear, the strokes gave a sound not easy to describe—as if they were made upon a very hard substance, yet not so sonorous as metal. Neither percussion, nor any other mode of examination, detected any disease of the lungs. On examining the spine, I found about five inches of it, in the dorsal portion, extremely tender to the touch, and exhibiting a posterior curve. On observing this, I felt fully persuaded that all the pseudo-symptoms of diseased heart had their origin in irritation of the spinal and great sympathetic nerves, and therefore applied my whole attention to this point; and I had the satisfaction of finding that, by proper applications to the spine itself, and at the same time by a course of medicine suited to restore the debilitated functions of the stomach and bowels, I succeeded in restoring my patient to perfect health; not suddenly or rapidly, but by slow and steady progress, till, at the end of a twelvemonth from my first attendance, he

was able to return to his original employment as a clerk in a counting-house in Glasgow; and he has, during the fourteen years that have since elapsed, continued to enjoy excellent health.

CASE THIRD.

October 1st, 1830.

W. E., ætat 12.—I was this day requested to visit this patient, and received the following history of the case from his mother. Until his ninth year he had enjoyed very good health, having experienced none but the complaints incident to childhood. Soon after this period, however, he began to complain of weakness, of palpitation at the heart, and loss of appetite; became dispirited, and “unlike himself.” She called in her ordinary medical attendant, who, after attending the patient for some time, informed her that he was labouring under enlargement of the heart, and that therefore all that could be done was to alleviate symptoms. Dr. S., of Greenock, and Dr. B., of Glasgow, had subsequently been consulted, and coincided in this opinion. Dr. B. had however recommended the application of a blister between the shoulders; but his advice was not complied with, the ordinary medical attendant having decided that it could have no effect but that of needlessly torturing the patient.

The boy had, for two successive summers, been carried to the sea-side, where he uniformly recovered flesh and vigour; but immediately on his return home fell off, and experienced a recurrence of all the painful symptoms. Mrs. E. added, that he was now worse than he had ever been, and was, in fact, in so alarming a state as to cause the greatest apprehension of immediate danger. On inquiring what mode of treatment had been pursued, I found from Mrs. E.’s reply, that the medical gentleman above-named had most rigidly pursued the starving system of Valsalva for the cure of aneurism; but instead of Valsalva’s bleedings, this boy’s bowels had been kept in a constant state of purgation, with calomel, jalap, and castor oil, daily repeated.

On being introduced to the bed-room of the youth, I could scarcely have believed that the spectre before me was the once blooming, vigorous boy I recollected. He lay in bed emaciated in the extreme; his eyes glistening and restless, moving constantly, with an uneasy and timorous rapidity, as if he was unable to fix them for any length of time on the same object. The pulse was sharp, and remarkably quick—140; the tongue moist—apex florid, but yellow towards the root. The respiration was hurried. The heat of skin rather more than natural. The voice strikingly weak. The expression of the countenance most deplorably anxious. On raising him upon his breech in bed, with a view to examine the chest and spine, I found that the slightest motion increased the rapidity of action of the heart to a most extraordinary degree; and that, as I have before mentioned in *Case First*, it seemed to beat in every part of the thorax at the same moment. I found the chest remarkably well formed; and could

not, by the most careful manipulation and percussion, detect the slightest local cause of irritation there. On turning to the spine, I was disappointed to find much less irritation, or tenderness to the touch, than I had anticipated. Allowing for the extreme debility of the patient, the column was perfectly straight; but the shoulders were pulled up in that peculiar manner which we observe in the latter stages of phthisis. Drawing the hand down the column gave little or no pain, but caused a thrilling sensation to pass through and over the thorax; this particularly occurred when the hand was passed rapidly down the cervical and dorsal portion of the spine; and at the same time the velocity of the heart's motion was increased far beyond counting; and the patient panted like one who has run beyond his strength. Drawing the hand gently along the course of the ribs, from the dorsal to the sternal aspect, produced an agreeable and soothing sensation.

Slight as these indications may appear, they yet left on my mind the strongest impression that the case was one of nervous irritation, not of organic disease, of the heart. Still, with an opposite opinion before me, from three medical men (for one of whom, viz. Dr. B., I felt the highest respect), I was very cautious in stating my sentiments, and requested a few days to form a more decided opinion.

The patient being put entirely under my management, I used the liberty of altering the treatment completely. I ordered a light, but nutritious diet, to be cautiously substituted for the starving system. The daily purgation to be given up; the bowels to be regulated by a Compound Rhubarb Pill, given at bed-time, *only when required*. The gastric irritation, from which he had suffered so severely, to be treated by the use of bitters and alkalies. Friction, along the whole course of the spine, and over the thorax, with a strong stimulating liniment, to be used morning and evening, as long at each period as he could bear it.

In the course of a very few days I had the satisfaction to see a marked improvement arise from this mode of treatment. The friction very soon produced an ample inflammation on the surface, which was quickly followed by a copious eruption, causing great irritation of the parts; but exactly in proportion as the external irritation along the course of the spine and intercostal nerves increased, the morbid action of the heart and arteries subsided; and the restlessness of the eye, and anxious expression of countenance, disappeared. By a well-regulated diet, and by the use of the sulphates of iron and quinine, "the bare bones" became quickly covered with a most comfortable quantity of flesh, his strength and spirits returned, and every symptom of "*enlarged heart*" most completely vanished.

My personal attendance ceased on the 26th of October, as I did not see it was any longer required; but the boy continued occasionally to take tonic medicine till the following February, by which time he was restored to most perfect health, having grown greatly both in height and breadth during the winter. His health, I am happy to say, still continues; and the last time I saw him he was a very fine looking, and strikingly athletic, young man.

CASE FOURTH.

James M'Ara, ætat 17.—This young man first applied to me in the winter of 1832. The history of his case, as I received it from himself and his mother, who accompanied him, was this.—He had always, as a child, enjoyed good health, and in his fifteenth year was bound apprentice in a merchant vessel from Greenock to the West Indies; in this vessel he made two voyages. Soon after leaving port on a third voyage, he was affected with the most unaccountable weakness, particularly of the lower extremities, accompanied with difficulty of breathing, asthma, and palpitation of the heart on the slightest attempt at exertion. By degrees these symptoms increased so much, that, on the homeward voyage, he was for the most part entirely confined to his hammock.

On his arrival at Greenock, his anxious parents immediately consulted Dr. S., and subsequently Dr. M., and Mr. M., of that place, as to his case. All these gentlemen, drawing their diagnosis from the use of the stethoscope, pronounced the boy's disease to be hypertrophia of the heart; and candidly enough informed the parents that nothing could be done for his case; that the disease was an incurable one, and must terminate fatally—probably would do so very suddenly, and at no distant period.—In fact, one of them went so far as to say he would not live three weeks.

I have omitted to note what time elapsed between this opinion being given and my first seeing him; but I should think some weeks at least intervened. At that time his appearance was sufficiently deplorable. Though reported to be seventeen years of age, no one could have conjectured that he was more than ten or eleven. He was short in stature; his shoulders was drawn up to his ears; the chest was hollow; and his arms hung in that peculiar manner which denotes either deformity or extreme tenderness in the spinal column; his step also, by its insecurity and hesitation, denoted the same; his face, apparently intended to be handsome, was sunk and emaciated; the eyes languid and glazed—the pupils much dilated; the expression of countenance, that of extreme anxiety and suffering. On any exertion, such as walking for a little distance, or ascending a stair, the face became swollen and purpled; the lips tumefied; the colour livid; the nostrils dilated; and the respiration so laborious that it might have been heard at some distance; at the same time the pulse became so accelerated as to defy counting. The appetite was very feeble and capricious; the functions of the stomach disordered; the bowels torpid; the urine turbid, depositing a reddish sediment on cooling.

On desiring the boy to strip, I found that the apparent deformity of chest merely arose from the attitude into which he drew himself in the effort to obtain easy respiration; for the frame-work was in all respects well formed; but the motion of the heart was so violent as to be distinctly perceptible to the eye at some distance, and to the

ear when three inches from the surface. There was also great irregularity in its movements. Notwithstanding all this, however, I was very decidedly of opinion that hypertrophia of the heart was *not* present; neither did I find, by the most minute investigation, by percussion and otherwise, that any disease of the lungs was in existence.

On turning to the spine, I instantly detected a lateral curvature, including the lower cervical and dorsal vertebræ. At this part, pressure occasioned a deep, involuntary sigh or sob, and an uneasy sensation, with increased action of the heart. Satisfied that I had discovered the source of all the lad's sufferings, I ordered each side of the dorsal and cervical portions of the spine to be freely leeches, and then blistered; requesting that the blister might be kept open as long as possible. I also ordered laxative medicine, to keep the bowels gently open, and a combination of bitter tinctures with alkalis, to correct the gastric irritation and acidity. The diet to be light and nourishing. Friction of the spine and chest to be duly practised.

In three weeks the patient returned to me, very considerably relieved in urgent symptoms, but still very far from what I hoped to see him. The blister having been allowed to heal, I ordered it to be again applied, and kept open; the other remedies to be continued as before directed.

The progress of the case from this time forward, though extremely slow, was highly satisfactory. In twelve months from the period I first saw him, he was restored to perfect health. At the time I left Port Glasgow, I never saw any lad of his age a more complete picture of youthful, blooming health, than he was. He had grown tall, and the shrunk face, and contracted chest, had assumed their natural and becoming proportions; while the muscular strength and vigour were in like proportion developed and improved.

CASE FIFTH.

October, 1833.

— —, ætat 14, has been for four months gradually drooping. Complains of great weakness of the lower extremities; pain across the loins; palpitation at the heart, and difficulty of breathing on taking any fatigue, as going up stairs, or even a slight ascent; constant headache; acidity of stomach to a most annoying degree; dull heavy pain across the chest, with hard clinking cough. The appetite is completely gone; the bowels torpid; the urine turbid, and emitting a most peculiar fœtid odour; the tongue foul; the pulse quick, and very variable, the slightest exertion raising it in a very remarkable degree; heat of skin very variable. Her appearance is greatly altered; the complexion is sickly and sallow; the eyes glassy, and pupils dilated, the vision much weakened; the lips colourless; the whole aspect expressive of the most extreme languor and debility. In walking, the step is slow; she raises the shoulders, and stoops,

like a very old person. There is slight inflammation and rawness of the posterior fauces, which has more or less annoyed her for some time past.

These symptoms I at first conceived to arise entirely from the constitutional irritation incident to the establishment of the catamenia in a delicate growing girl. Acting upon this view of the case, I merely recommended that her school hours and exercises should be abridged, or for a time altogether discontinued. Rest to be allowed; a course of tonics to be pursued; and the bowels regulated by the use of Magnesia and Comp. Rhei Pill.

Finding, after some weeks perseverance in this plan, that, so far from any improvement taking place, every symptom was aggravated, the debility increasing, and emaciation becoming alarming, I felt convinced that my diagnosis of the case had been more or less incorrect. Watching my young patient with the keenest attention, I observed that her dress constantly hung awry upon the bust, drooping off the left shoulder; and the idea immediately followed in my mind that this could only arise from great weakness or decided curvature of the spinal column. Examination proved this opinion correct. There existed a double lateral curvature, giving to the spinal column the form of an italic *f*. It was painful to the touch throughout the whole length; but more particularly so at the upper and middle portion of the dorsal vertebræ. When gently pressed at this part, a disagreeable tingling sensation was produced along the whole length of the lower extremities, even to the toes. Increased pressure aggravated this into the sensation vulgarly known by the name of a *sleeping foot*, and at the same time occasioned a sudden gasp, and sense of suffocation in the chest. So great was the irritability of the spinal nerves at this time, that though I conducted the examination with the utmost gentleness, and endeavoured to avoid giving unnecessary pain, yet the patient winced at every touch, and afterwards complained of increased pain in the head, and sickness at stomach. This appears the more remarkable, as she never had previously complained of any tenderness or pain in the back, if we except the above-mentioned dull, dragging uneasiness across the loins.

In addition to the plan of treatment already adopted, I now ordered constant rest upon the inclined plane, quietness, and careful avoidance of all excitement; and, notwithstanding the extreme debility of the patient, a very free application of leeches to the pained part of the spine. Friction, for an hour at a time, twice a day, with anodyne and stimulating liniments, along the spine, and over the thorax; this she was at first scarcely able to endure without screaming; but on perseverance it produced very pleasing and soothing sensations. It was most curious to observe, that after almost every application of the leeches, the pain shifted to a different place, and when pursued there with the leeches, frequently returned back to the place it had just left; and thus it was chased up and down the spine, till, ere it was finally expelled, there was scarcely one vertebra, from the upper

cervical to the lower lumbar, that did not bear marks that leeches had been there.

Exactly as the pain and tenderness of the spine declined, so did the urgent symptoms above stated. The distressing head-ache, and the amaurotic appearance of the eyes, gradually disappeared; so did the gastric irritation; and the appetite, hitherto capricious, and for some time so entirely gone, began to return, and I had the pleasure of seeing my young friend contemplate her breakfast and dinner with feelings far from akin to disgust or loathing. The strength also increased, and the general appearance became more satisfactory.

When I left Port Glasgow in the beginning of May 1834, I considered this case to be progressing in a very favourable manner. The young lady was then able to walk out into the garden, where she greatly enjoyed a little gentle exercise. In the month of June she passed through Manchester on her way to Buxton: she had come by the steamboat to Liverpool, and bore the journey from Liverpool to Manchester, with little inconvenience or fatigue.

Her general appearance and state of health were greatly improved: the spine was perfectly straight, and the tenderness quite gone. It is a circumstance highly worthy of remark, that from the time of my first attendance she had grown at an average one half-inch every month.

She remained six weeks at Buxton, using the baths and drinking the chalybeate waters, from which she certainly derived great benefit to the general health. On her way back to Scotland, I was delighted to observe that she had gained both flesh and colour, and placed her foot to the ground, in walking, with that firmness that is so decided a proof of health and nervous energy. I have since had the pleasure of hearing that she continues to enjoy good health.

CASE SIXTH.

Oct. 1832.

James Baillie, island of Cambray; aged 14.—Is reported to have been a very stout child till his fifth year, when he had hooping-cough. From this period he never recovered his health or strength. Was afflicted with breathlessness, palpitation of the heart, and general debility, particularly in the lower extremities; is very small of his age, and has a vacant expression of countenance.

On examination I found the chest gibbous and ill developed, the spine forming a posterior curve from the cervical to the bottom of the dorsal vertebræ; the whole length of the column slightly painful to touch. The poor boy is extremely asthmatic, and the palpitation of the heart on taking exercise becomes so violent as to make the head vibrate in unison with its throbbing: bowels torpid; appetite poor; is neither emaciated nor sallow.

From the urgency of the symptoms, and the great length of time they had been in existence, I felt but little hope of being successful in this case, as it was hardly possible to suppose but that actual organic

disease must have taken place. I mentioned this opinion to the parents; but, to give the boy a chance, I suggested that a blister should be put upon the back, and kept open as an issue for a length of time. This was done, and the issue continued for five months: it was then healed, and again in two months was renewed, as his general health seemed to have derived some slight advantage from the former one, and he had grown considerably in the interval. It was kept open for four or five months, but no attention was paid to the other and more important part of the treatment, that of keeping the patient in a recumbent attitude, and preventing his making any undue exertion.

At the end of a year, when he was once more brought to me, I could not observe any change to the better upon him, except that he walked with less difficulty. The irritability of the heart was in no way abated, neither was the asthma less severe. I advised that a mild palliative system should be adopted, and the poor boy allowed to die in peace. This he did in a few months after, without any increase of illness, except that for a day previously he complained of sickness. His death was sudden, and, from what was reported to me, appeared to have taken place in a convulsion. I greatly desired a *post mortem* examination, as it might have elicited some curious facts; but the distance (thirty miles) from my residence, and the season of the year, rendered it impossible.

CASE SEVENTH.

1833.

Mr. A., aged 34, a tall, fine-looking man.—Previous to his present ailment accustomed to take a great deal of exercise; passionately fond of field sports. While at Buxton for the benefit of my own health, in the autumn of this year, I met with this gentleman. Living at the same hotel, we frequently entered into conversation; and he mentioned to me that he had been sent to Buxton by his medical friends, in hopes of palliating (for little expectation could be entertained of curing) a very painful complaint with which for eighteen months or two years he had been afflicted,—which some of these gentlemen considered disease of the heart, and others as a flying gout. His general health was very tolerable, and there was no apparent emaciation. The bowels were regular, and the appetite good. Frequently, however, when in the act of swallowing, deglutition was suddenly interrupted, as if a foreign body had interposed to prevent the morsel from going more than half down the throat; and this always produced a most agonising sense of suffocation; at the same time the heart palpitated violently. Nor was this the most distressing form of his complaint. He scarcely ever went to bed that he did not, just when falling asleep, start up with the same sense of sudden suffocation. The face flushed, the temporal arteries throbbing, the heart palpitating most violently, and the whole frame convulsed, as it were, with the pangs of immediate dissolution. This very

painful scene was frequently repeated during the night, and had made so deeply gloomy an impression on Mr. A.'s mind, that he said to me he never now went to bed without the feeling that ere the morning he would most probably be a corpse. He had consulted various medical gentlemen both in Liverpool and London, had tried a variety of remedies, but without deriving any sensible benefit. As this was mentioned to me merely in the way of conversation, not of a consultation, I felt a certain delicacy in giving an opinion; but from all I could observe I was very much inclined to consider this a case of spinal irritation, not only from symptoms, but from a peculiar bend, or rather jerk, backwards of the shoulders, with which Mr. A. walked, and which his lady informed me was not formerly a characteristic of his gait.

The day previous to my leaving Buxton, I was seated upon one of the benches in the Crescent with Mr. A. and a number of other invalids; when something was said which caused us all to laugh very heartily. Mr. A., suddenly pressing his hands upon his chest, begged we would not make him laugh, as it was "like to kill him," adding something about "disease of the heart." I said at the moment, "I do not believe, Mr. A., there is any disease of the heart about you." He shortly afterwards took an opportunity of asking what I meant, and I then told him what my opinion of his complaint was, and that as it did not agree with that of his medical advisers, it had better be put at rest by an examination of the spine: to this he immediately assented, and I found the whole upper part of the spine extremely tender to the touch, the third, fourth, and fifth dorsal vertebræ displaced so as to form a sharp curve anteriorly, thus pressing upon the œsophagus, impeding the circulation, and causing the uneasiness and sense of suffocation in the act of swallowing, and on the recumbent posture being assumed.

I left Buxton next morning several hours earlier than I had contemplated when I parted with Mr. A. the night before, and long ere invalids were stirring. Unfortunately we thus had not exchanged our address, and I lost sight of the case completely, greatly to my regret. If ever this page should meet his eye, or that of any of his friends, I beg leave to say that I shall be most happy to hear from him, as I have never ceased to feel the deepest interest in his case.

CASE EIGHTH.

1834.

Master —, aged 13.—Has always been a thin spare-made child, but has hitherto enjoyed excellent health, and an uncommonly large share of animal spirits and activity. For some weeks past he has been drooping, become languid and sluggish, every movement seeming a trouble to him; complaining of head-ache, acidity of stomach, loss of appetite, spasms in the limbs, violent palpitation of the heart, and short dry cough.

I have been requested to visit him, in consequence of his having
APRIL, 1837.

fainted in school, where his anxiety to keep up with his young class-fellows induced him to persevere in going, when, as it appears, he was ill able for the exertion.

I found him extremely languid; the eyes dim and staring; complexion pallid; lips colourless. Pulse quick, weak, and variable; respiration hurried; tongue white; bowels torpid; urine deposits red sand on cooling.

I found on examination that there was a double lateral curvature of the spine, with great tenderness, particularly at the dorsal portion. Pressure there aggravating the palpitation of the heart to a most extraordinary degree, at the same time increasing the general uneasiness.

The treatment in this case was very similar to that which I have already detailed in others. I requested that all severe studies might for the time be suspended, and that, as the boy had an active and intelligent mind, he should be supplied with light reading; the recumbent attitude to be kept as much as possible: gentle exercise in the open air when the strength should permit, with frequent change of air, and occasional sea-bathing, for which the situation of his family afforded every facility. In a few months his health was perfectly restored. His growth during the progress of the case was most extraordinary.

ON

DISEASES OF THE LUNGS

OCCASIONED BY

NERVOUS IRRITATION.

AMONG all the diseases which afflict human nature, there is, I believe, not one on which so much has been, and still continues to be written, or which commands so intense an interest, as Consumption of the Lungs. This feeling is not confined to the profession—it extends to society at large; nor can we wonder that it does so, when we consider the insidious manner in which this disease makes its first approaches; the various, and often mysterious ways in which it runs its course; its frequent resistance of all medical treatment, even in its earliest stages; and its confessed incurability when advanced beyond; joined to the sad fact, that of its numerous victims the greater number are selected from the young, the fair, the most interesting of our race; the very beings we would most wish to res-

cue from an early grave :—all these causes united tend, I say, to invest consumption with a strange and mournful interest ; and tend in the same proportion to make every light which can be thrown upon its origin and history, a benefit to suffering humanity ; and hence it has arisen that consumption has proved such a wide field, and rich harvest, to the boldest imposition, and most boundless cupidity, of empiricism.

Adhering to the plan I have laid down for myself in writing these pages, I refrain from here noticing any of the innumerable theories which exist in the medical world as to the causes and cure of phthisis.

It is my own opinion, founded on practical observation, that the original seat of morbid action, in this malady, is in the nervous system. I have already adverted to the undeniable fact, that it is from the nervous system alone the vascular derives the vital energy by which it performs its functions ; and that hence debility or irritation at the root, or in the course of a nerve, or set of nerves, must inevitably produce morbid action in the tissues on which they are ramified ; whether that be the heart and blood-vessels, the lymphatics, absorbents, or any of the viscera, the effect will be the same, though the particular character of the disease developed will depend upon the seat of it, as well as upon many collateral circumstances.

When a vessel, larger or smaller, is deprived of the power by which it performs its functions, it must become either turgeseent or collapsed—most commonly the former ; and as it is impossible for it quietly to continue in this state, congestion follows more or less rapidly. If, on the contrary, collapse takes place, the consequences will be very different, but ultimately not less destructive of health and life.

Let us now apply this reasoning, and these facts, to diseases of the lungs ; glancing in the first place at what occurs in the incipient stage of that malady. Neglected catarrh, usually denominated “ a slight cold,” sudden alternations of temperature ; grief, disappointment, and anxiety of mind, especially when preying on it in secret ; imprudent over exertion of either the mental or bodily powers, are among the principal causes to which we generally hear consumptive patients, or their friends, ascribe the commencement of their complaints. I do not at this moment recollect a single instance in which the patient did not mention, or readily admit, that among the first unpleasant sensations he could recollect, was that of coldness over the whole body, but *more particularly down the back*. Nothing is more common than to hear them compare this to the sensation of cold water suddenly dashed upon the shoulders, or a wet cloth closely applied to them ; and the remark follow, that “ no application of external heat, or even active exercise, tended to remove this sensation ;” evidently proving that it arose from sudden and serious diminution of nervous energy. If, at this period, nothing is done,

and successfully done, to rouse the system,* and bring it up to a healthy tone, morbid action in some viscus must be the result; and, owing to their peculiarly delicate structure, and varied functions, this too often occurs in the lungs. This is above all the case amongst the young of both sexes, at the important period of life when the constitution is passing from the state of childhood into the full development of its powers; and when of course the nervous system is in a most peculiar degree irritable, and open to morbid impressions. And I must here beg leave to remark, that to the mania for OVER-EDUCATING our children, very, very many fatal cases of consumption can in the present day be traced. In male, but still more in female seminaries for education, a medical man is tempted to believe the system has been devised with a view to produce consumption. The bodily powers are weakened by want of due exercise, and by being stinted in the quantity of sleep nature so imperiously demands for all growing animals; while the health of the nervous system is directly assailed by undue excitement, and over-tasking of the mental powers.

Why is it that we number among the victims of consumption so many of the most promising and most highly gifted of the youth of both sexes?—why but because, by the misjudging, blindfold vanity of parents and teachers, or the no less unthinking and headlong ambition of the youthful victims themselves, the powers of life are over-tasked, and a mental excitement is kept up, which, while it burns, consumes the vital, that is, the nervous energies of the constitution; till nothing is left but wasted ashes—over which blasted ambition mourns in vain—and blighted hope and affection shed their holiest and bitterest tears.

The most minute and laborious researches have in the present day been made, by various eminent members of our profession, into the nature of the changes and appearances which take place in the lungs after morbid action is fully established in them. In the results of these investigations I find nothing hostile to my opinion, that the producing cause of that morbid action is deficiency of nervous energy; and that therefore, until we can restore that energy, we labour in vain to remove the effects produced by its absence; and that if we do succeed in removing it, the affection of the lungs will disappear synchronically, provided it has not advanced so far as to incapacitate these organs for their office of oxygenizing the blood.

* How very easily this may be done at the first moment of danger, is shown by the fact, that a small quantity of spirits, taken into the stomach of those who can swallow such a prescription, or a like quantity rubbed warm upon the spine and chest of those who cannot, will in most cases prevent any bad effect from even a very severe chill; more certainly so if followed by gentle exercise. In like manner, if the feet and ankles be well rubbed with spirits before and after exposure to damp, as in angling and in field-sports, the danger will be found in a great degree obviated, simply from this cause, that the previous friction, and absorption of the spirits, having raised the tone of the nervous energy an *octave or two* above the natural, prevents it sinking so much under it, on the subsequent exposure, as to produce a morbid effect.

That St. John Long, of famous memory, acted upon this principle, I am most fully convinced. Whether he understood it or not, is another matter. That St. John Long did restore persons to health, who had been pronounced to be labouring under incurable diseases of the lungs by men of no mean name in the world of medicine, is a fact so notoriously true, that nothing but self-interest or blind prejudice can induce any one to deny it. The circumstance that he undertook, with equally unblushing confidence, cases which decidedly were, and proved incurable, as well as his pretensions to having a *preventive* of the disease, shows either utter ignorance of the first principles of what he practised, or the most irresistible cupidity.

What his nostrum was, I do not pretend to know; nor do I believe he confined himself to one, because I knew instances in which persons under his care were subjected for a length of time to frictions, three or four times each day, without either vesication or excoriation being produced; while in others this took place at the first or second application. He perhaps had had sagacity enough to discover that the length and regularity of the mere friction was of quite as much importance as the nature of the rubefacient; and he showed his tact by acting in such a manner as to secure *this point*, by obliging his patients to remain under his own immediate surveillance while undergoing this process. Nor is it to be denied that in his cures a good deal was owing to the strongly excited imagination and superstitious confidence of his patients.* This discussion, however, belongs more properly to the section on remedial treatment.

It is the opinion of most of our respectable medical authorities, that after lesion of the lungs has taken place, no restoration to even comparative health is to be hoped for. It must be admitted that, when they have become diseased, the lungs have less chance for recovery than any other viscus. Their functions are varied and laborious, their employment absolutely incessant; in addition to which, when ulceration takes place, the continual irritation produced by their constant action, and the contact of the air respired, render the difficulties of a cure serious and manifold. Still, from experience I am inclined to adopt the opinion of absolute incurability only under considerable limitations.

It is now too much the fashion with a certain class of our profession, when they find or fancy, by stethoscopic examination of the chest, that lesion of the lungs is present, to condemn the patient to inevitable death; and thenceforth, abandoning all active measures for his recovery, adopt a mere palliative mode of treatment, under which time never to be regained is lost, and the patient glides into that incurable stage in which they had at first pronounced him to be.

In the hands of a Laennec, or of any man of acute sensations and long experience, and who has served an apprenticeship to its free

* I say *superstitious*, because what is it but a form or modification of superstition that renders human beings (especially in England,) so prone to commit their dearest interests, whether in medicine or religion, to the boldest pretender, in preference to the most thoroughly versed but unvaunting professor?

and unrestrained use in a large hospital, the stethoscope forms a most excellent auxiliary in diagnostics; but in the hands of the ignorant, the inexperienced, but above all the presumptuous, it becomes, from the very simplicity, yet imposingness, of its application, a most deceitful and fallacious guide.

In many cases which have come under my own observation, such persons have persuaded themselves that they discerned the sounds indicative of extensive disorganization of the lungs, and therefore brought a verdict, "guilty of incurable consumption," against persons who have lived to laugh at them and their stethoscope. Such things are deeply injurious to the respectability of our profession at large, as well as to the interests of our science; for it is in this way that many excellent discoveries do, after a time, fall into undeserved disgrace and disrepute.

To resume the subject, let it never be forgotten, that even where lesion of the lungs (more especially if it has its origin in the tubercular form of consumption,) does actually exist, very many collateral circumstances ought to be most maturely inquired into and weighed, ere we act upon or emit a sentence of condemnation.

M. Bayle asserts he has known persons live forty years under consumption; and the accurate Laennec gives many instances of persons making a perfect recovery, whose lungs he acknowledges to have been at one time diseased; and of others who, if not cured, at least enjoyed for many years a very supportable degree of health. I was myself told, by an old and most respectable member of our profession, (the late Dr. Carmichael,) that he personally knew a gentleman who lived for five-and-thirty years under constant treatment for tubercular consumption, yet this individual enjoyed very tolerable comfort, and was at last carried off by an attack of enteritis! On a *post mortem* examination, there was scarcely a portion of the lungs that did not exhibit traces of disease more or less recent.

The fact is, that where the nervous energy is restored by judicious medical treatment, or by the rebound of a powerful constitution, the efforts which Nature makes to repair the devastations of disease are most truly astonishing. Who is there, in the habit of pursuing morbid anatomy, that is not made aware of this? How often do we find in the lungs of persons who never during life complained to us of their respiratory organs, or at least said no more than that formerly they were "liable to bad colds," not only cicatrices indicative of former lesion, but substances varying from the size of a millet-seed to that of an egg,—sometimes resembling cheese, sometimes chalk, and contained in what evidently had been the sacs of tubercles that had run their course, discharged their contents, and then, in spite of this new deposit, been forcibly closed up by the curative efforts of Nature! * And do we not, in all the viscera, meet with similar instances of this wonderful power of adaptation to existing circumstances in the animal economy?

* Note C.

Why, then, let me ask, do we resign our patients to "a palliative treatment," while a shadow of hope remains, or any plan has been left untried? And, above all, why do we send them to die far from their home and their friends? When that home is by the sea-side, I admit that removal from it is quite necessary; but I will venture to say that no consumptive patient ever yet was saved by being sent out of England, who might not have been saved by being kept in it, and judiciously treated.

In the following cases, it is to be observed that both in those which ended fatally and those which recovered, very great spinal irritation, and in some of them deformity of the column or displacement of some of the vertebræ, was present; and not one case of consumption has come under my care or notice, since my attention was turned to this subject, in which I did not find this symptom.

I could have added a great many to the cases given here; but I deemed it unadvisable to load so small a work as this with any, either on phthisis or other diseases, which did not possess peculiar interest or which could seem like repetition.

To obviate all doubt on the subject, I pledge myself that I have given the only cases of consumption, which ended fatally under my care, since the year 1819.

PHTHISIS.—CASE FIRST.

— — A young lady, eighteen years of age, had from childhood enjoyed the most robust health. In the summer of 1817, was exposed for some hours to the weather, and great fatigue, under circumstances of painful mental excitement. A few days afterwards she complained of severe pain in the chest, languor, and general uneasiness, frequent palpitation of the heart, and slight cough, with which she spit up a little frothy blood.

She underwent a variety of treatment, such as bleeding, blistering, and issues, without any permanent good effect. As the winter advanced, the symptoms of phthisis increased; her flesh and bloom faded, and her debility became very great. Towards spring, urgent symptoms began to decline, without the change being attributable to any particular cause; and by change of air, and great attention, her health was in the course of the summer completely restored.

At the approach of winter, however, in spite of every precaution taken, there was a gradual return of all her complaints; and by the middle of December she was considered decidedly consumptive.

At this time she could scarcely walk across her room, and her appearance was quite phthisical. The pulse was generally from 100 to 120. The pain of chest was very severe, and the paroxysms of cough so violent that the unfortunate girl was wont to slide from her chair to the floor, when she felt them coming on, and there she lay nearly convulsed. No expectoration ever took place; but occasionally, when unusually severe, she vomited from half a pint to a

pint of colourless water; and very often blood was brought up in small quantities.

During one of these paroxysms, my partner suggested putting the feet and limbs into the warm bath, which was done, and instantly the cough was arrested as if by magic. Repetition of the experiment only tended to confirm the fact of its influence in subduing the cough; but as it was but too likely to augment the liability to take cold, and the general delicacy of the patient, it was as sparingly applied as possible.

This circumstance had the effect of awakening my attention for the first time to the fact of nervous irritation producing or simulating symptoms of phthisis. Proceeding on this idea, I recommended a course of medicine such as I conceived likely to subdue this irritation. Much to my disappointment, however, the patient became so much worse under this treatment, that I found myself necessitated to suspend it. I next ordered frictions over the whole spine and thorax, to be continued for an hour twice each day. A very faint degree of amendment appearing to arise from this, I next ordered volatile liniment with laudanum to be used. When this had been used for about a fortnight, there was the most decided change for the better in all the symptoms. A slight rash having appeared upon the parts rubbed, I desired ointment of tartrate of antimony to be applied along the dorsal portion of the spine; the frictions over the thorax to be continued as formerly. Under this treatment, I had the great satisfaction to see my patient recover completely. She is still alive, and, though always a delicate person, has never since had any attack of a phthisical tendency.

PHTHISIS.—CASE SECOND.

February 27th, 1828.

Miss — — —. Was consulted for the first time to-day upon this case, and received the following history of it from the young lady's mother. She had been very robust, and enjoyed excellent health till somewhat less than a year ago, when, from no visible cause, she began to droop, and from that time, in spite of a variety of medical treatment which she has undergone, her health has become steadily worse. She is now, for the most part, confined to bed, and the ordinary medical attendant of the family has announced it as his opinion that her complaint is consumption, and that nothing more can be done for her recovery. I found her extremely emaciated; the complexion of a peculiarly sallow hue; lips bloodless; eyes sunk, and yet staring; countenance expressive of great anxiety and suffering; complains of stitches in various parts of the chest, and of a fixed pain, covering a considerable extent in the centre of the sternum, reaching to the scrobiculis cordis. Frequent, hard, hacking cough, which greatly aggravates this pain and the stitches, and is occasionally accompanied with expectoration of mucus slightly tinged with blood. Great pain of head, sometimes

most severe at the occiput, sometimes across the forehead, at other times diffused over the whole skull. Night perspirations are very severe, and debility so great, that when out of bed she snatches at each successive chair for support, as she moves through the room. The respiration is quick and hurried, greatly excited by motion; and the palpitation at the heart is then so violent "as almost to take away the breath;" the shoulders are pulled up, and the chest hollowed; cannot make a deep inspiration; the voice peculiarly feeble; catamenia reported regular; bowels rather torpid; urine scanty, and peculiarly foetid; tongue flat, yellow, and slimy at the posterior portion; pulse 120, small, and very feeble; thirst considerable; appetite very poor and capricious.

Such was the state of this patient at my first visit; and few will be inclined to deny that here were very strong symptoms of phthisis. Yet finding, on the most careful examination, nothing which I considered as a decisive proof of organic lesion of the lungs, I felt inclined to view it as one of long-neglected nervous irritation, and therefore requested permission to examine the spine. After considerable difficulty, this was granted. On drawing my fingers *very* gently down the column, no pain was experienced; but on increasing the pressure, and drawing my fingers down each side of the spinous processes, no sooner did I reach the middle and lower portion of the dorsal vertebræ, than the patient winced, drew herself forward to escape from me, and complained of great increase of pain at the sternal aspect. On repeating the pressure still more firmly, she gasped for breath; the pain in the breast covered a larger portion; and the cough was severely excited: at the same time a most disagreeable thrilling sensation darted down the inner side of the thighs to the very soles of the feet. The curvature in the dorsal portion of the spine was very evident, even without a plummet.

Satisfied that I had discovered the source of all the patient's ailments, I directed the attention of her mother to it, and endeavoured to explain to her my views on the subject. The result was, that she requested me to take the case entirely under my own management.

I ordered, notwithstanding the extreme debility of the patient, that eighteen or twenty leeches should be applied over the pained vertebræ. Gentle friction over all the other parts of the spine, and over the whole thorax, to be sedulously attended to. The bowels to be regulated by a simple laxative pill and magnesia; the stomach to be treated with tonics of quinine and iron; the diet to be generous, but not heating; the recumbent posture to be preserved, unless the patient felt desirous of moving about; exercise never to be pushed the length of fatigue.

The leeches were applied at intervals of two and three days; and before a week had elapsed, the sternal pain began to give way; and, as it were, to *recede* from its first station. At each successive application of the leeches it seemed to retreat towards the spine, at the same time lessening in severity. If, trusting to these favourable

appearances, the leeches were omitted for a day or two longer than usual, the pain advanced again towards the sternum, always retreating on a renewal of vigorous applications to the spine. The general health at the same time made a sensible advance, and all the urgent symptoms declined in severity. I then applied strips of blister, an inch broad, on each side of the spinous processes in the dorsal region, keeping them open as long as seemed prudent, then allowing them to heal, opened them again a little further up or down the column, occasionally alternating them with leeches. The progress of the case under this mode of treatment was by no means *steadily* onward. It seemed at times to stand still; at others, almost to recede, instead of advancing. Nevertheless, when I considered that the hectic was subdued, the cough abated, and the flesh improving, I would not allow myself to despair. As the summer advanced, I sent her to the mildest and most inland situation that could be selected, for change of air; and, as in all cases of nervous irritation, this produced a most beneficial effect; she returned home in high spirits, greatly increased in flesh, and every thing in her case wearing a favourable appearance. By the end of July, every symptom of phthisis having completely disappeared, she was sent to the Island of Bute, where she enjoyed sea-bathing for several weeks, rapidly progressing to a state of perfect health. On her return home, it would have been difficult to recognize in the blooming, plump young woman she appeared, the same emaciated, and to all appearance dying person, I beheld her at my first visit in February.

Our profession is an arduous one. It has, beyond all other, its days and its *nights* of unmitigated toil, and intense anxiety; but there is no denying that it also has its moments of heartfelt satisfaction and benevolent enjoyment no other profession can ever boast!

This young lady has continued to enjoy uninterrupted health; is married, and, I believe, a mother.

PHTHISIS.—CASE THIRD.

Miss M., aged 17.—This young lady had been in delicate health from her thirteenth year, when she had a sore throat, accompanied with enlargement of the submaxillary and parotid glands. This left her extremely emaciated, and with a constant tendency to catarrhal symptoms, such as short dry cough, pain of chest, and slight feverishness, on the least exposure to cold. The greatest care to ward off these attacks had been taken by the ordinary family attendant, and by her mother, who was a very sensible and experienced person. Notwithstanding all their efforts, however, she was, when first placed under my care, in April, 1832, labouring under many symptoms of incipient phthisis, rendered the more alarming by the circumstance that five or six of her paternal aunts and uncles had died of that malady. She complained of extreme languor and aversion to move; loss of appetite; acidity of stomach: pain of chest; cough; breathlessness on taking the least exercise, par-

ticularly on going up stairs ; and severe high sweats. The voice was feeble and shrill ; the shoulders drawn up, and the head poked forward ; the left shoulder lower than the right, shown by the dress invariably hanging off, that side. The bowels were very torpid. The face was extremely pale, but not sallow ; the lips colourless, and the eyes sunk—the pupil greatly dilated, showing the peculiar amaurotic symptoms I have so often mentioned.

I examined the chest with the greatest attention, but found nothing to countenance the apprehension of phthisis. On examining the spine, I found the whole of the dorsal vertebræ tender to the touch, firm pressure on them exciting a very marked increase of sternal pain and spasmodic gasping, and, when continued, palpitation of the heart, rapid respiration, sickness at stomach, and disposition to faint.

Duly considering the hereditary predisposition to phthisis in this case, my prognosis to the relatives was a very guarded one. The mode of treatment ordered was nearly similar to that in Case *Second*, and I am most happy to say it was in all respects equally successful. At the end of autumn the young lady returned from sea-bathing in excellent health, though still wearing a delicate aspect and complexion. By degrees those too disappeared, and I had the great satisfaction of seeing her recover flesh, strength, and robust health.

PHTHISIS.—CASE FOURTH.

Feb. 27, 1827.

Miss L., Greenock, aged 23.—Reported to have enjoyed very robust health till within the last few months. During that time she has gradually declined, and is now considered by her friends to be consumptive. She complains of severe hacking cough, coming on in violent and long-continued paroxysms, which leave her exhausted and feeble. Constant pain in the centre of the sternum ; strong palpitation of the heart on taking the slightest exercise ; copious night perspirations ; total loss of appetite.

Previous to her present illness she was plump and florid ; she is now sallow and greatly emaciated ; has that peculiar stoop of the chest, with raised shoulders, which is well known as a phthisical symptom. The eyes are languid—pupils much dilated ; lips colourless ; countenance expressive of great langour and anxiety. Pulse quick and feeble ; respiration hurried and difficult ; the attempt to produce a full inspiration brings on acute pain in the chest, and immediately excites the hacking cough,—literally the *tussis clangosa*. Bowels reported torpid. Urine emits a peculiar fætor when voided ; deposits red sand on cooling. Catamenia reported regular.

On examination of the spine, I found no curvature whatever, nor even tenderness *over* the column. On drawing my hands down each side of it, however, in the dorsal region I found it immediately excited the cough, and increased pain in the sternal aspect ; when repeated, the pulse became accelerated, and the breathing more

laborious. Guided by this in my diagnosis, I gave it as my opinion that this was no case of phthisis, but merely one of great nervous irritation. In this opinion I was most happy to find that my valued friend Dr. Hill, of Greenock, who was the regular family attendant, fully and entirely coincided, and that he also agreed with me as to the mode of treatment to be pursued. This need not be detailed, as it did not materially differ from that in the preceding case. I only saw the patient twice : she convalesced rapidly, and made a perfect recovery under Dr. Hill's management. She married soon after, is a mother, and continues to enjoy excellent health.

PATHISIS.—CASE FIFTH.

M. A. K., aged 20.—This girl was brought to me for consultation from Cheshire, in July, 1834. The history given of the case was, that eighteen months previous to this period she was for several hours exposed to damp and over-exertion. The catamenia, being then present, disappeared, and never returned. She became at the time cold all over,—“so cold,” to use her own words, “that nothing could be like it ; and for days and days nothing would warm me.” Cough, pain in the chest, restless uneasiness, difficulty of breathing, and night sweats and debility, followed in due time. She underwent a variety of medical treatment, without experiencing even temporary benefit.

On examining the chest, I felt fully aware that tubercles had formed in the lungs ; but from all I could ascertain it did not appear that any had run their full course, or discharged their contents. On examination of the spine, I found it throughout its whole length in a highly irritable state, but more particularly so in the dorsal and lumbar regions.

I directed a similar mode of treatment to that pursued in the foregoing cases.

The patient had come into town, 17 miles, in an open gig, and returned the same day by the same conveyance, the wind at the same time being both cold and damp.

In a fortnight she was again brought to me, in every respect worse than when I had formerly seen her. I insisted that this ruinous plan of her taking such journeys in an open carriage should be abandoned, and, if she was so anxious for my advice, that she should remain in town to have it. This was agreed to ; but, in a very few days after, purulent sputa began to be expectorated in amazing quantities, and the case rapidly degenerated into one of hopeless ulceration of the lungs. Having frankly announced my opinion to her friends, she was removed home, where, to my astonishment, she continued to linger till the beginning of November.

I feel most fully convinced that at the period I first saw this patient her case was far from hopeless ; but poverty presented an insurmountable barrier to much of the treatment it required. The long exposure to cold damp air, and fatigue, in an open carriage, the

first day she came to Manchester, I conceive produced inflammation of the lungs, terminating in abscess.

The state in which I found the spine and nervous system strongly contributed to convince me, that in Nervous Irritation will ultimately be found the real source of Pulmonary Disease.

PHTHISIS.—CASE SIXTH.

Miss ———, of B——, Derbyshire. I was last spring consulted by letter, and subsequently requested to visit this young lady, in consequence of the apprehensions entertained by her friends, and the medical gentleman attending her, that she was labouring under Phthisis Pulmonalis. In the previous autumn, or beginning of winter, she caught a severe cold, from which time her health declined. I found her labouring under constant sense of tightness over the chest, with severe fixed pain at the sternum; very frequent tearing cough, occasionally accompanied with muco-purulent expectoration; the sputa partly sinks and partly floats in water; any attempt to make a deep inspiration causes sharp stitches in the chest, and brings on the cough; frequent heart-burn; constant pain of head; respiration hurried, and the heart palpitates violently on the slightest exertion; the sleep is disturbed and unrefreshing; complains much of copious perspiration coming on towards morning; the flesh and strength are greatly reduced; the face and lips colourless; the eyes dull—pupils dilated; pulse quick and feeble; bowels torpid; urine turbid, and of a peculiar fœtor, occasionally depositing red sand; catamenia regular; voice thin and weak.

Observing that the patient stooped forward very much, and that her dress fell off one shoulder more than the other, and being assured that this was of recent occurrence, I requested permission to examine the spine, and found it exhibiting a lateral curvature of an inch and a half from the perpendicular. There was extreme tenderness in the whole of the dorsal region, pressure there aggravating the pain at the sternal aspect.

On retiring with the family attendant, I mentioned to him my opinion that the symptoms in this case arose entirely from irritation of the spinal nerves. The idea was perfectly new to him, and he was by no means inclined to coincide in it; candidly stating to me his doubt of any beneficial effect arising from the mode of treatment I proposed. At the same time, with a liberality which did him honour, he expressed his wish to give it a fair trial. I therefore chalked out a plan of treatment very similar to that pursued in the foregoing Cases. Friction, with an embrocation in which I had begun to place great confidence, being very particularly enforced. Great credit is due to the gentleman above alluded to, for the zeal and attention with which he watched this case; and he had the satisfaction of making a complete cure. The young lady has just now (August) returned from the sea-side—the third change of air she

APRIL, 1837.

has, by our directions, made during the summer ; her health is perfectly restored ; and she has completely regained her plumpness and her bloom.

One of the most melancholy instances of predisposition to Phthisis which ever came under my notice, was that of a gentleman's family upon which I was called to attend in 1824, in consequence of the ordinary family surgeon being at the time indisposed. The mother and eight children, of all ages, from infancy to twelve or fourteen years, were labouring under bronchitis, which prevailed greatly at the time.

These children had the complaint with unusual severity, but all recovered in a satisfactory manner. I had, however, seen enough to make me apprehend a phthysical diathesis ; and before my attendance ceased, I warned the parents that the greatest care and attention on this point would be requisite in rearing their family.

In 1829 I was again called to this family, in consequence of a son, about nineteen years of age, who had gone into business, having returned to his father's house in a very bad state of health. In the interval from my former attendance, the mother and four children had died of phthisis.

The youth now placed under my care was evidently dying ; but a more extraordinary case I never met with. He was debilitated to the last degree, but he had neither pain nor suffering of any sort. The functions of the stomach were not deranged ; the appetite was tolerable ; and emaciation was not remarkable. Respiration was difficult, but not painful ; the pulse quick and feeble. On percussion, the chest gave a sound as of a perfectly solid substance. The cough was not severe. The expectoration was not purulent, but of a greenish hue, and frothy. There was a very remarkable posterior curvature of the cervical and dorsal vertebræ, and at this part the patient complained of uneasiness when touched. There was no time for treatment, however ; the debility increased with rapidity, and, without any increase of other symptoms, he expired in three weeks after he came under my care.

On a *post mortem* examination, the lungs were found so complete and solid a mass of tubercles, that it became a matter of astonishment how respiration had been carried on, or the circulation maintained, during the latter period of life. It was evident, from the appearance of the mass, that it had been forming for a great length of time ; and the absence of all suffering during life makes this a very curious case. The liver was paler than natural, and tubercles were found in various parts of it. The spleen also was paler than natural, and the mesenteric glands were enlarged. The other viscera appeared natural.

Soon after the death of this young man, his younger brother showed symptoms of a similar description, but continued to go about, to walk, to ride, and enjoy tolerable comfort, till the beginning of

November, 1832, when after about a week's confinement he expired. In 1834, a most lovely and interesting daughter also fell a victim to the same desolating malady; but of her case I have learned no particulars.

ASTHMA.—CASE FIRST.

On the evening of 9th January, 1829, I received a hurried call to *A. H.*, the son of a respectable farmer, a stout lad of 14 years of age, accustomed to constant out-of-door work. The message bore that he had been suddenly seized with *croup*. On my arrival, I found him sitting at the fireside quite composedly, and was informed that the attack had gone off as suddenly as it came on. The face, however, retained all the appearance of a recent and violent struggle, being swelled and bloated, with streaks of a livid hue. The eyes looked starting from their sockets, and the conjunctiva was suffused: the respiration hurried; pulse quick. From these appearances, joined to the description given of the attack by those who witnessed it, I was convinced it had not been one of croup, but of spasmodic asthma.

On requesting him to strip, I found the chest well formed and developed, and percussion excited no uneasiness whatever. On proceeding to examine the spine, my hand no sooner came in contact with the second, third, and fourth dorsal vertebræ, than it elicited a gasp from the patient, like that caused by a sudden plunge into cold water; and he complained that it seemed as if it would cause a second attack of all his previous sufferings and breathlessness. I could not, however, repress my curiosity to repeat the experiment, and did so several times, invariably with the same results. There was not the slightest displacement or twist of any of the vertebræ, nor did the same pressure that caused the gasping cause any pain to the parts. The whole column was apparently healthy.

Satisfied that I had discovered the source of the spasmodic attack, I ordered two dozen of leeches to be applied over and around the spot where pressure occasioned the gasping: these to be applied every few days, and if the attack of asthma did not cease to return, blisters to be applied, and kept up as an issue. The bowels to be kept open by mild purgatives, combined with tonics of iron and quinine.

Under this treatment the attacks of asthma declined in violence and frequency; and in two months the boy was restored to perfect health. He grew very rapidly during this time and immediately after; has, as far as I know, never experienced any recurrence of asthma; and became remarkably hale and robust.

ASTHMA.—CASE SECOND.

In October, 1834, I was consulted by a very stout, large-made man, 65 years of age, who complained of having been for five or

six years troubled with attacks of severe asthma, coming on in the most irregular and capricious manner; but, what seemed to himself exceedingly mysterious, it most frequently attacked him "just when he was pulling on his coat in the morning." I inquired whether he had any pain in the back at these times, or at any time. He said he had not; but seven years before, on making an imprudent exertion of his strength, a pain between the shoulders seized him, and continued for some time to annoy him. On examining his spine, I found very considerable irritation over the whole dorsal vertebræ. At this place there was a posterior curvature, but I felt some doubt whether this was not the old gentleman's original conformation: at all events, pressure on this part instantly produced asthmatic sobbing and increased uneasiness. I requested him to follow the plan of treatment I habitually pursue in such cases, and he departed promising to do so. He had come from a distance to consult me, and I heard nothing more of him for some months, when I accidentally learned he had died from the bursting of a blood-vessel in the lungs causing instant suffocation.

DISEASED LIVER.—CASE FIRST.

November, 1833.

J. R———, aged 29, a cook in a gentleman's family in Greenock.—Has hitherto enjoyed good health. Consulted me in consequence of extreme debility, which renders her unable to move about or take the slightest exercise. If she walks a little distance, or ascends a stair, the fatigue is so intense as to oblige her to sit down every two or three minutes; her heart palpitates violently; the breathing becomes rapid and oppressed, and faintness frequently supervenes. She complains of a short dry cough, pain in the chest, from the sternum, extending round the sides; loathing of food, and constant acidity of stomach. Voice weak and husky; talking a few words completely exhausts it, so that she stops and breathes hard. Her appearance has in a few months altered from that of a stout, athletic woman, with a clear, blooming complexion, to the emaciated appearance of disease; the skin exceedingly jaundiced; the eyes languid—pupils dilated. Bowels torpid; urine scanty, of a peculiar odour, depositing red sand on cooling. Pulse quick and feeble. Catamenia regular. Has felt her present ailments coming on for some months, but cannot state any particular cause for them. Consulted the family attendant of her master; he gave her some medicine, which she supposes was calomel, as he told her that the jaundiced appearance of her skin showed that her complaint was in the liver. Derived no benefit from the medicine.

On examination, I found nothing to countenance the idea that the liver was the seat of disease; but I found a lateral curvature of the spine, which threw it nearly an inch and a half from the perpendicular line at the centre of the dorsal region, pressing down the ribs till they approximated to the ilium on the right side, so as

probably to occasion functional disturbance of the liver, and give rise to the jaundiced appearance of the skin. The pain on pressure was not so great as the magnitude of the curve would have led one to expect. Pressure down each side of the spine caused a deep sob, and very marked increase of uneasiness for the moment.

I ordered treatment similar to most of the cases already detailed. That she might be attended without difficulty or interruption, she left her situation, and went to her father's house, where I attended her for three or four months. Her convalescence was tedious, but very satisfactory; and before I left Port Glasgow, in May, 1834, her health was quite restored.

DISEASED LIVER.—CASE SECOND.

M. M'C., aged 16, consulted me shortly after the above case came under my care. I received the following history of the case from the patient's mother.

She originally had a good constitution, and enjoyed excellent health till autumn, 1833, when she became languid and debilitated, without any sufficient cause being apparent. Loss of appetite, constant acidity of stomach, pain in the chest, and headache, supervened. The flesh rapidly declined; the complexion became sallow, and ultimately jaundiced. The usual family attendant, having been consulted, pronounced her complaint to be disease of the liver, which he said had already made considerable progress. She was immediately put under a smart course of mercury, which was continued till the constitution was fully influenced by it. No benefit whatever, but the reverse, arose from this plan of treatment; her friends were of opinion that she became so very decidedly worse under it, that they were induced to put the case entirely into my hands.

At the time I first saw her she complained of extreme debility, and was unable to be out of bed for any length of time: walking once or twice across the room brought on such breathlessness and palpitation of the heart, as sometimes almost to make her fall to the ground. There was no appetite, and a decided loathing at *animal* food. Constant heartburn, and frequent headache; amaurotic appearance of eyes very remarkable. The flesh was flaccid and greatly reduced; the complexion very jaundiced; the pulse rapid and weak. Catamenia tolerably regular. The right shoulder was lower than the left, shown by the dress falling off the bust on that side.

I could not, on examination, find there was present the slightest indication of any organic disease of the liver, or any visceral disease whatever. I was therefore led to the conclusion, that the symptoms arose from nervous irritation. A view of the spine showed cause sufficient to account for this: it presented the appearance of an Italic *f*, the curvature being double,—the upper one towards the right side. The whole length of the column was painful to touch—*acutely* so at several points, particularly over the whole dorsal

region, pressure upon which excited cough and increased uneasiness over the spot pressed upon, and at the lower and middle part of the sternum.

My first care was directed to free the constitution entirely from the mercury so unnecessarily poured into it. I then ordered the pained parts of the spine to be freely leeches every two or three days; frictions with stimulating liniments over the thorax and on each side of the spine. After a few weeks, the leeches were alternated with blisters, with the happiest effect. Mild tonics, with alkalies and gentle laxatives, and the constant recumbent posture, formed the whole treatment of this case. The urgent symptoms rapidly declined; the jaundiced appearance went off exactly in proportion as the straightening of the spinal column relieved the liver from pressure. The appetite and flesh returned; she was sent to the country, and subsequently to sea-bathing, with the happiest effect; and some months before I left Scotland, I had the satisfaction of seeing that she enjoyed the most perfect health.

DISEASED LIVER.—CASE THIRD.

— —, a stout, athletic girl, ætat 21.—Has been habituated to hard work and constant exercise from her earliest childhood: has enjoyed uniform good health till of late, when she began to experience a sense of indescribable languor, fatigue, and uneasiness in the lower extremities, and occasionally over the whole body; accompanied with hurried respiration, loss of appetite, acidity of stomach, great pain in the right shoulder, more particularly on raising the arm to the head, as in the movement of sewing. Uneasy nights, the sleep being interrupted and unrefreshing. The bowels are constipated; urine scanty, and of a most offensive odour, depositing red sand on cooling. Eyes peculiarly staring and clear, pupils being much dilated. Complexion completely jaundiced; pulse variable; tongue foul. Catamenia regular.

Observing that the left shoulder of this patient was very perceptibly higher than the right, I was induced to examine the spine, and, as I had anticipated, I found not only a considerable curvature to the right, but the dorsal and lumbar vertebræ very tender to touch. The short ribs were almost in contact with the crest of the ilium on the right side, sufficiently accounting for the jaundiced complexion and other pseudo-hepatic symptoms.

By a mode of treatment similar to that detailed in the foregoing cases, this patient recovered her health; but it was a very great length of time before she felt anything like her former vigour or athletic powers of exertion: neither did she, as long as I knew her, ever regain her *embonpoint* or blooming complexion.

DYSPEPSIA.—CASE FIRST.

1826.

— —, a young lady, ætat 12, very tall of her age, and

slender; dark eyes, hair, and complexion; complains of constant acidity of stomach, disinclination to food amounting to nausea; acid eructations, accompanied with pyrosis; what comes up is occasionally so sour as to set the teeth on edge; constant languor, and aversion to exercise; frequent head-ache, and fits of the most unaccountable dejection and irritability. The bowels are torpid; the tongue foul; breath peculiarly fœtid in the morning; pulse low and irregular; flesh and colour altered very much for the worse. One uncommon symptom is a constant craving for acids, so that it requires considerable attention to prevent the child drinking up vinegar, or sucking lemons, whenever she can by any means procure them.

Observing that this young lady's dress constantly hung off the left shoulder, I was induced to examine the state of the spine, and found it exhibiting a double curvature—the true *Italic f*; with a very well marked gibbosity of the ribs on the right side, and great tenderness to touch in the cervical and dorsal vertebræ.

I ordered that she should be confined to the recumbent posture, on a hard couch, with a small hair cushion strapped over the gibbous ribs, so as to produce gentle pressure when she lay on that side. All school tasks to be given up, and the child's mind kept as easy and as much amused as possible. Very frequent and long continued frictions with stimulating liniments; exercise in the open air at stated intervals, to be increased as the strength revives; and a certain portion of vinegar to be allowed with the child's dinner, the only meal she ever takes with a relish.

Under this mode of treatment, the patient's recovery was satisfactory, and she is now a remarkably healthy and handsome woman.

Two things are remarkable in this case; the one is the *apparently depraved* desire for acids, which literally proved to have been “the voice of nature supplicating for relief”—for, from the time she was allowed the free use of vinegar, the extreme gastric irritation was allayed; and the other is, that she subsequently confessed having, previous to her illness, repeatedly received severe blows on the dorsal portion of the spine, in the act of swinging; some so severe as to produce nausea at the moment. I think there can be no doubt entertained that these blows were the original cause of the nervous irritation productive of the dyspeptic symptoms. The catamenia were not established till her sixteenth year, and then without any constitutional disturbance.

DYSPEPSIA.—CASE SECOND.

M. C., a slender-made girl, 18 years of age, servant in a gentlemen's family in Glasgow, applied to me in November, 1827. Mentioned that some weeks previously she had, on attempting to lift a heavy tub from the ground, felt as if something gave way in her back; and immediately an acute pain rushed into her breast at the lower part of the sternum, extending over the region of the stomach.

A medical gentleman was sent for, who ordered sixteen leeches to the seat of this pain. They bled freely, and gave some relief, which however was only temporary. A blister was then applied to the same place, but with no perceptible benefit. The pain continued to increase, and extreme restlessness and uneasiness, head-ache, nausea, aversion to food, frequent vomiting, and nervous tremors, were present. She could not sit up, from the indescribable wretchedness caused by the position ; “and yet,” she added, “I am scarcely less wretched in any other posture.”

Being unable to work, she resigned her situation, and passing through Port Glasgow on her way to her native place, she consulted me.

Finding the spine had never been examined, I examined it ; and found the whole dorsal portion of it in a very irritable state. I ordered two dozen leeches to be applied to this part ; and the patient declared that even before they were done bleeding, she felt the most marked amelioration of urgent symptoms. I desired the leeching to be renewed at intervals, and to be occasionally followed by a blister, kept open for a time. Frictions with stimulating liniments were pursued night and morning ; and by this treatment, joined to the use of tonics and laxatives, and ultimately the daily use of sea-bathing, the girl in a few months perfectly regained her health.

DYSPEPSIA.—CASE THIRD.

R. S., a stout labourer, tall and large-made ; applied to me in November, 1832. Had enjoyed good health during the whole course of his life, except on one occasion, ten years ago, when he wrenched his back between the shoulders, by lifting a weight beyond his strength : from this cause he suffered considerably for some time, but ultimately regained his health, and had forgotten the circumstance till it was recalled to his mind by my questions.

Complains now of severe head-ache ; dull pain in the lumbar region ; acid eructations ; nausea, and aversion to food ; constant pain and acidity of stomach, even a little tea, or a draught of cold water, producing sickness and vomiting of acid or bitter fluid ; the flesh is wasted ; colour gone ; strength so much prostrated that to walk a few yards is an almost intolerable exertion ; the eye dull and languid ; tongue white ; bowels torpid ; pulse small and variable ; his nights are sleepless and uneasy ; the mind in a very gloomy and despairing state.

I ordered an alkaline mixture with bitters ; a dose to be taken three or four times a day. The diet to be animal food, with hard biscuit highly dried, to the exclusion of vegetables. The bowels to be kept soluble by gentle laxatives.

In about three weeks he returned to me, looking more ghastly and deplorable than ever : said that for eight or ten days he felt sensibly better for my prescriptions, but after that period they entirely failed, and for a fortnight he had scarcely swallowed an

ounce of food—never even a mouthful without its producing severe vomiting.

I ordered him to strip, that I might examine the state of the spine ; but his weakness was so great that I was obliged to give him half a glass of brandy, and a bit of biscuit, before it could be accomplished. I found three or four of the middle dorsal vertebræ tender to the touch. The patient sobbed, and complained of indescribable uneasiness, when the hand was firmly drawn over this part of the back ; the lumbar vertebræ also were slightly tender ; no distortion or disarrangement of the column was observable.

I ordered a large blister to be applied to the dorsal region, to be kept open for some time by irritant dressings. Three grains of oxide of bismuth to be taken thrice a day ; an alkaline draught before each meal ; and such laxatives as would keep the bowels gently open.

When I visited him in the evening, he told me he had had several hours refreshing sleep, and that the brandy and biscuit I gave him had not been vomited,—the first time for three weeks anything had been retained by the stomach. I advised him to repeat it, but the effect was entirely reversed, that it produced nausea and vomiting of some hours' duration. On the rising of the blister, this harassing symptom subsided, and never again appeared. Nausea, and aversion to food, continued to annoy him for some weeks ; but by perseverance in the above-mentioned treatment, with the addition of frictions with a stimulating liniment, he completely recovered. In the month of March he returned to his laborious occupations ; and has never since had an ailment of any description.

DYSPEPSIA.—CASE FOURTH.

A gentleman between forty and fifty years of age, of very temperate habits, naturally of a robust constitution, and who had been employed as a merchant from his boyhood, consulted me in 1833, stating that he had suffered for upwards of two years from constant acidity of stomach, frequent nausea, and aversion to food ; occasional voracity of appetite ; but a full meal was uniformly followed by feelings of misery so great, that the patient seemed to want words to describe them. Severe pain of head, resembling the sensation of having the hair torn out in handfuls by the roots ; lancinating pains in the limbs, particularly on first awaking in the morning ; frequent and distressing sense of distension in the belly. The bowels were torpid ; the tongue foul ; the complexion squalid ; the flesh flabby and reduced. Complained of unaccountable anxiety and despondency of spirits, and an irritability of temper quite foreign to his natural disposition.

On inquiring into this gentleman's habits, I found that he generally got up between seven and eight in the morning, breakfasted about nine, and went immediately to his counting-house, where he continued till five in the afternoon, occupied in conducting the affairs

of an extensive mercantile concern. Never had been in the habit of taking more than a biscuit—and since his stomach complaints began, not even that—between breakfast and dinner : he frequently returned to business after dinner.

Finding that he had undergone a vast variety of medical treatment, in the course of which he had swallowed such an extraordinary and heterogeneous mass of drugs as fully convinced him he had nothing to hope from that practice, I requested an examination of the spine : there was neither displacement nor tenderness in the column itself, yet finding that a most peculiar and unpleasant sensation was produced by drawing the hands from the sternal to the dorsal region, I came to the conclusion that nervous irritation was in this case the cause of the dyspeptic symptoms.

I ordered twelve leeches to be applied on the dorsal region. Slight relief following, they were repeated in a day or two ; and as soon as the bites healed, the whole back and thorax were subjected, night and morning, to long-continued friction with the flesh-brush. I also ordered that dinner should be regularly taken at three o'clock, and half an hour's siesta to follow it. All drugs to be given up, except as much mild aperient medicine as would keep the bowels gently open ; and half a glass of alkaline tonic mixture an hour before each meal.

Finding a marked improvement take place in a few weeks, I ordered friction with a stimulating liniment : this very shortly produced a profuse miliarial eruption, extremely itchy and irritable. It was kept up for some months, during which time the gastric irritation gradually declined, and at length was wholly removed. It is a very remarkable fact, that the eruption declined and disappeared exactly in the same ratio ; though the application of the liniment which first produced it was continued for many weeks after the stomach complaints were completely cured.

Since I have resided in Manchester, many cases bearing a close resemblance to the above have come under my notice, and have uniformly yielded to similar treatment, except one, in which I subsequently discovered nephritic tendencies were the origin of the gastric irritation.

CRAMP IN THE STOMACH.

In the night of the 12th April, 1832, I was suddenly called to a lady, 46 years of age, the mother of a large family, and who had all her life enjoyed the most robust health.

I found her writhing in all the agonies of the most violent spasm or cramp in the stomach, by which she was drawn together with her head almost between her knees. The abdominal muscles felt hard, and were drawn towards the spine. Respiration much incommoded. Features sharp ; face pallid ; eyes sunk and half closed, showing only a part of the conjunctiva. Surface of body covered with cold clammy sweat. Pulse hardly perceptible at wrists.

A considerable dose of laudanum in a glass of hot brandy and water had been given before my arrival, but it was ejected from the stomach in a few minutes, and no relief was obtained. Hot applications to the stomach externally, and two Pil. Thebaica, and Æther, succeeded no better. The patient was sitting out of bed, drawn together in the way I have described: I began gently to rub the spine along the dorsal region, when the patient told me very *impatiently* she had "no pain in the back—the pain was in her stomach," and that I increased the pain by touching her back. On hearing this I persevered, making an attendant continue the frictions with laudanum, till the pain and spasm of stomach was completely subdued. An agreeable glow accompanied the subsidence of pain, and was followed by a sense of great itching all over the parts which had been affected by the cramp.

In about two hours I left my patient quite free from acute pain; I ordered her to have a dose of castor oil in the morning. Next day I found her very nearly in her usual health, except that externally the stomach felt bruised. She declared that all she ever suffered in childbed was not to be compared to the agony she had undergone the night before.

DIABETES.

J. Fleming, a farmer, ætat 34.—First consulted me on the 4th February, 1833. Has all his life enjoyed most robust health, till his present illness. About the end of last autumn he had occasion to go into Argyleshire, to bring home to his farm in Kilmalcolm a drove of cattle. This is in any circumstances a laborious and anxious undertaking; but on Highland roads and over Highland hills it is particularly so. He had servants with him, yet took his turn regularly, both in watching the cattle by night, for several nights in succession, and driving them by day. Thus he was exposed to the weather, with no other covering than a greatcoat and shepherd's plaid; at the same time suffering considerable irregularity and discomfort in his diet. No bad effect seemed at the time to result from these exertions; but shortly after his return home his strength and flesh began to decline, without any apparent cause, yet his appetite was more than usually keen; and though constantly *uneasy*, he suffered little positive pain. He had constant urgent thirst, and voided large quantities of limpid urine. This last symptom, and the emaciation, increasing rapidly, he consulted in succession several medical men, who all assured him he was labouring under an incurable malady.

Having lastly consulted Mr. Smellie, surgeon of Houston, that gentleman advised him to put himself under my care. He was brought from his own house to mine, a distance of about seven miles, seated on horseback, where he was held by one of his brothers, his debility being so great as to disable him from otherwise retaining his seat. His appearance truly deplorable; the athletic form wasted to a skeleton; the skin dry and husky, sallow, almost approaching to

a brownish hue. The voice feeble; the respiration hurried; the pulse quick and thready; tongue foul and slimy. Bowels torpid; the eyes sunk in their sockets; the appetite voracious; thirst urgent. Complains of frequent acid eructation; of a sense of coldness and discomfort over the whole surface of the body. Generally voids from four to five gallons of urine during twelve hours—at least during the night; has never exactly ascertained the quantity during the day, but thinks it less than at night. The urine limpid and sweetish tasted. Has taken great quantities of medicine of various sorts, without deriving any benefit. Thinks himself “a dying man.”

It would not be easy to express the satisfaction which I felt in getting this case into my hands. It was the first I had met with for many years, and I had long most ardently desired an opportunity to test the correctness of an opinion which I had formed from analogy, that diabetes originated in irritation or debility of the nerves supplying the stomach and renal apparatus. It certainly was anything but a favourable case for a curative experiment, having been for five or six months progressing under a variety of treatment, of which I knew nothing but its unsuccessfulness. Anxious in the first place to know whether it would yield to an internal remedy, I ordered, with a view to alter the secretion of urine, twelve drops of the Tinct. Muriat. Ferri to be taken three times a day, gradually increasing the dose to double that quantity. A laxative pill to be used to keep the bowels open.

By the 18th the case had made little progress one way or other: the quantity of urine had once or twice, for a day or two at a time, seemed to diminish, but again increased: the other symptoms were nearly stationary. I ordered the medicines to be continued, and an ointment, composed of two drachms of tartrate of antimony, previously triturated with spirits of wine, and combined with one ounce of lard, the size of a walnut to be rubbed night and morning along the whole length of the spine; the friction to be continued as long as the patient could bear it.

The eruption was more than usually tardy in making its appearance, which may possibly be accounted for by the absence of vital energy in the surface, as shown by the constantly cold and husky skin. At length, however, a copious crop of pustules was produced along the whole length of the back, from the cervix to the sacrum, and shortly after their appearance the symptoms began to subside, with a rapidity far surpassing my most sanguine expectations. The quantity of urine gradually diminished, and became saltish instead of sweet; the appetite became natural in the same proportion; the thirst abated, and the flesh and strength augmented so rapidly, that in a few weeks he walked from his own house to visit me, and returned the same day, with little fatigue. By the middle of May he was completely out of my hands, and had returned to his ordinary avocations as a farmer. Up to the period of leaving Scotland, he continued perfectly free from any diabetic tendency, and enjoyed

good health, though not entirely restored to the Herculean strength he possessed previous to his illness.

TABES MESENTERICA.—CASE FIRST.

November, 1830.

J.W., island of Cumbray, aged six.—Is reported to have enjoyed good health till about five months ago, when he began to droop and get sluggish; complained of weakness and pain of the lower limbs, and latterly of the back. The appetite became poor and capricious; thirst urgent; the flesh is now greatly wasted; the complexion squalid; eyes dull and staring; countenance anxious and unhappy. The dejections appear like half-digested food; the urine deposits red sediment on cooling, and is offensively fetid.

Has been seen by two medical men in his native place, but I could not learn that any benefit had arisen from their treatment, nor even what was its nature.

The spine is painful to touch throughout its whole length. At the lower dorsal and lumbar region there is a considerable posterior curvature. Drawing the hands down each side of the spine causes a sick sensation, as if the patient was going to faint. The abdomen tumefied and hard: there is no pain on pressure, nor can I detect any existing disease of the viscera.

Ordered this patient to be kept constantly on a hard mattress, without a pillow. Frictions along the whole breadth and length of the back, with stimulating liniment. Great attention to the bowels, but the less physic the better. Diet to be nourishing, with occasionally a little wine. Gentle exercise in the open air to be permitted as the inclination for it returns.

I never afterwards saw the patient; but I understood that my orders were most scrupulously obeyed, and in four months the boy was restored to perfect health: he is now a remarkably robust, well-grown lad.

TABES MESENTERICA.—CASE SECOND.

September, 1831.

Mary Hunter, island of Cumbray, aged 10.—Is reported by her mother to have enjoyed excellent health, and been a very stout romping girl, till five or six months ago, when she suddenly began to droop; became quite listless and inactive; complained of constant headache, pain in the lower extremities, want of appetite, and constant acidity of stomach: shortly afterwards she complained of dull dragging pain in the loins and sacral region.

In July the family medical attendant was consulted, who pronounced the symptoms to arise solely from worms, and ordered treatment to that effect. No improvement whatever resulting from this, but rather the little patient's strength and flesh rapidly declining, a surgeon at Milport was consulted. He candidly told the

mother that he did not at all understand the case, but considered it a very hopeless one.

The prostration of strength is now so great, that she is unable to stand without support, drags the limbs in attempting to walk, and altogether presents a most deplorable appearance, being greatly emaciated ; sallow, the features shrunk ; eyes hollow and amaurotic ; voice very feeble ; respiration hurried and painful ; pulse quick and feeble ; appetite quite gone, what is eaten appearing to pass through the intestines undigested. Complains of frequent and severe pain of head. Vision greatly impaired.

On examination, I found the whole length of the spine in an unsatisfactory state, and tender to touch, particularly in the dorsal and sacral regions. Drawing the hand down or up the column caused a painful tingling sensation down the thighs, and in the soles of the feet ; when the hands were passed down the back, a little way on each side of the vertebræ, it caused an indescribably painful sensation of sickness over the stomach, abdomen, and even in the head ; the patient at the same time uttering a low tremulous moan, and seeming ready to faint, while the lips trembled, and the countenance became if possible more ghastly and wretched in its expression.

Thus assured that the child's complaints arose from irritation, not only of the spinal nerves, but of the sympathetic system also, I directed a narrow strip of blister, six or eight inches long, to be applied down the left side of the spine in the dorsal region, to be kept open with issue dressings for a couple of weeks, when it was to be allowed to heal, and a similar one to be applied on the right side in the lumbar and sacral regions ; and thus they were to be constantly alternated, till the whole length of the back, on each side, had been freely vesicated. A mild tonic system of medicine, with great attention to the state of the bowels, to be observed. Constant rest on a hard mattress, with the head laid low, was particularly enjoined, and also gentle friction over the thorax and along the course of the ribs. Six weeks elapsed without the unremitting attention paid by her mother to these orders, or the fortitude and patience of the little sufferer herself in submitting to them, being rewarded by any appearance of amendment. About the end of November, however, an improvement in the strength of the lower extremities became very apparent ; and at the same time the appetite improved, the evacuations became more natural, and the general appearance changed for the better. The treatment was persevered in till the beginning of January, 1832, when she was able to walk out alone, and with the restored joyousness of childhood it became difficult to hinder her from over-exerting her returning strength. The blisters were occasionally had recourse to, for four months after this period ; but in May she returned to school in perfect health, which she has ever since continued to enjoy. She is reported to be now an uncommonly robust, stout girl.

TABES MESENTERICA.—CASE THIRD.

M. F., an infant of eight months, born Dec. 1832. I was accoucheur on occasion of its birth. The labour was easy and natural; the child very sprightly and healthy. It throve remarkably well till seven months old, when, without any apparent cause, it began to pine away. I was just at this time obliged to leave home for Buxton, on account of my own health; and know not how the case was managed during my absence. On my return, in October, 1833, I was immediately called to it. I found the child greatly emaciated; the lower extremities as powerless as if they had been paralyzed; the abdomen hard and tumefied; the temper to the last degree irritable and uneasy; the appetite quite gone; the bowels torpid; the breath remarkably sour; the pulse quick, small, and variable.

Finding no reason to suppose that this sad state of matters was connected with dentition, I next examined the child's body, and found the spine very tender, particularly at the lumbar region, where there was a posterior curvature; at the upper part of the dorsal portion, one of the spinous processes projected very considerably; any handling or pressure of this part made the child extremely fretful and uneasy.

I ordered the little patient to be kept as much as possible in the horizontal position, upon the floor, with a few folds of blanket or carpeting under it; gentle frictions along the back and the limbs, with slightly stimulating liniment, to be used several times in the day. The diet to be nutritious; the stomach and bowels to be regulated by small doses of magnesia and rhubarb.

It was interesting to see how quickly, under this simple treatment, the infant regained flesh and strength. The extreme fretfulness of the little creature made it at first rather difficult to enforce the lying upon the floor; but it seemed soon to discover that it had more ease in this position than in any other, and kept it without resistance.

The paralysis of the lower extremities gradually disappeared, and in three or four months the child was running about, active, healthy, and plump; and, as far as I know, continues to thrive, and to enjoy perfect health.

TABES MESENTERICA.—CASE FOURTH.

J. N., a boy between two and three years of age, brought from the interior of the country for consultation. Is reported to have been a remarkably healthy, active, and fearless child, till about six months since, when he began to get listless and peevish, and was observed by the mother to walk with a strange rocking movement of the body. In a short time he lost the power of his limbs altogether; the flesh became flabby; the colour sallow; the belly large and tumefied; the functions of the stomach disordered, so that the

child at times refused food, at others ate with voracity. Had been seen by several medical practitioners, and had undergone a variety of treatment, in the course of which a very great quantity of calomel had been poured into the system; but the debility and suffering of the little patient augmented every day.

On examining the child, I found the flesh wasted, the abdomen enlarged and hard, but not painful to touch; the features sharp; the chin projecting; and the chest slightly gibbous; the whole length of the spine was painful on pressure, and from the lower cervical to the lower dorsal presented a posterior curvature, so obvious that it astonished me how it could have escaped the notice of the medical attendants and the parents themselves. The lumbar vertebræ had also a lateral curvature, which joined to the other, gave the whole column a most singularly twisted appearance.

I ordered a treatment similar to that of the foregoing cases. Under this the child's general health and strength slowly rallied; but the posterior curvature of the spine was permanent. As the residence of the child was thirty-four miles from mine, I very rarely saw it, and perhaps less attention had been paid than ought to have been, to keeping him constantly in the recumbent posture. At all events, he is now hunch-backed, but enjoys excellent health, and is a remarkably clever, precocious little fellow.

TABES MESENTERICA.—CASE FIFTH.

April 10th, 1833, I was requested to visit a child two years and a half old, which the mother informed me had had an easy birth, and was uncommonly stout and healthy till it was two years of age, at which time it was running alone, and remarkably stout on its limbs; shortly afterwards it was observed to lose its appetite and colour; and the flesh to get soft; its limbs seemed to fail under it, and it expressed constant weariness and fretfulness. The ordinary medical attendant of the family pronounced that dentition was the cause of its ailments, but matters becoming rapidly worse, further advice was deemed necessary.

Finding nothing to indicate that dentition had any share in producing the child's complaints, I examined its body. It was wasted almost to a skeleton; the limbs plaited under it as those of a paralytic, or new-born infant, and seemed quite palsied. The abdomen was tumid and hard, but not painful, on gentle pressure. The back was bent like an aged person's, and at the dorsal and lumbar regions there was pain on pressure, and a slight projection of one or two of the vertebræ in both places.

Treatment similar to that of the foregoing cases, followed by sea-bathing, completely cured the child; and in five or six months it was once more running about, a plump, romping little rogue.

I am not aware that *Tabes Mesenterica* has hitherto been re-

marked as associated with, or arising from, spinal irritation. The above are the only cases of this disease which have occurred in my practice since my attention has been turned to the subject ; except one on which I was consulted a few months ago, of a lady about 40 years of age, who had languished under the malady for several years, but was in its last and most hopeless stage before I saw her. On examining the spine, it was found in a very diseased state. Several of the vertebræ at the lower cervical, dorsal, and lumbar regions, were displaced, and sunk anteriorly, leaving a puffy feel, with extreme tenderness to touch. The advanced state of the disease forbade all attempt at active treatment, and it proved fatal shortly after. No *post mortem* examination was permitted.

CHOREA.—CASE FIRST.

C. H., aged 23, a fine-formed, remarkably blooming girl.—Was placed under my professional care in November, 1823, in consequence of inflammation and tumefaction of the left-knee joint, which caused great pain in the parts, but little or no constitutional disturbance.

Over the patella a tumour formed, which I punctured : it contained pure serum. Wet sponge and a roller, as recommended by the late Mr. Allan in his "System of Surgery," were used with the happiest effect. The fluid did not re-appear, and the joint remained free from disease, though for a considerable period it felt weak and tender on any unusual exertion. She continued to enjoy good health till January, 1825, when she complained of an indescribable, but most painful, sensation in her head, causing giddiness, dimness of vision, loss of memory, and impeded articulation.

When called to her, I found the eyes dull and languid ; the countenance most particularly vacant ; the temper, formerly the most gay and cheerful in the world, altered to sullen, reserved, and melancholic. The motions listless and slow. The flesh and muscular power greatly reduced. The appetite was bad ; the bowels torpid ; pulse quick and small ; heat of surface natural.

Whenever the question was asked by those around her, what caused so great mental depression, she replied in the most mournful voice, "the apprehension that the disease in her knee would return, and render her incapable of gaining her own livelihood,—and she had no home." Always when thus speaking, and sometimes even when silent, it was remarked that she shook her head in a most extraordinary and grotesque manner. It, however, very speedily became evident that these motions of the head were perfectly involuntary ; and they soon increased to such a pitch as quite defies my pen to describe. The attacks were always sudden, occurred uniformly on any mental excitement or start ; even hearing her name pronounced in an unusually loud tone would produce them ; but frequently they came on without any apparent cause. The chin was jerked from one shoulder to the other with a rapidity which nothing but the

motion of steam machinery could equal. The only idea I can give of it is by saying that the bystanders lost all sight of distinct features, exactly as one does of the spokes of a rapidly revolving wheel. The violence was no less remarkable than the rapidity of this strange jerking movement; so much so, that the comb tucking up her long fair hair was frequently thrown out with such violence as to strike the opposite wall. During these paroxysms she was quite unconscious of all surrounding sights or sounds, and, fortunately for herself, was, on their subsidence, equally unconscious they had occurred. In fact, she wore at these times, with the exception of the motion of the head, the appearance of a person in profound coma.

The medical treatment of the case varied from time to time, as I found successive remedies fail in producing any permanently good effect. In January, purgations, and the free application of leeches to the forehead and nape of the neck; the head shaved, and cold applications kept to it. In February, the bowels kept open by gentle laxatives. Powder of Valerian combined with Oxide of Zinc in powerful doses twice a day. On the 22d the whole head was blistered. On the 27th she was bled at the arm, and on the 28th an issue was opened at the posterior fontanelle. I then tried her with opiates. But all seemed equally futile in subduing this extraordinary complaint. On the 15th of March I inserted a seton in the neck over the uppermost cervical vertebræ, and, as much to my surprise as gratification, I found this remedy succeed in arresting and finally curing the disease.

In the course of a few days the involuntary motions of the head ceased; but as the strength and flesh had been severely reduced, it required great care and attention ere the patient was restored to health. Frictions along the whole back, change of scene, and sea-bathing, contributed most materially to this end; but she never recovered her robust appearance or fine complexion.

In 1832 this patient married, and passed through eight months of her first pregnancy without any unusual occurrence: she then experienced a sudden and apparently causeless attack of the strange involuntary movement of the head. It came and went for about an hour, and then entirely ceased; but from that time no motion of the fœtus was observable. At the full time labour came on, and was in all respects natural and easy; but I delivered her of a still-born child, which had evidently been dead for some weeks. The following year she again became pregnant, and again passed through gestation without any unusual symptom till the end of the eighth month, when a similar attack occurred, with the same lamentable result,—a result anticipated by herself, as all fœtal movement ceased after the spasmodic attack; and it was very evident, from the state of the child when born, that it had died at that period.

I then gave it her as my most earnest advice that she should study to strengthen the constitution by change of scene, sea-bathing, gentle exercise, and daily frictions of the spine along its whole length; and I had very lately the satisfaction of hearing that she had this

year given birth to a living and healthy child, no recurrence of the spasmodic movements having taken place.

CHOREA.—CASE SECOND.

M. F., aged 12.—Tall of her age; slender; complexion remarkably sallow.

I was first called to see this girl to-day, 7th December, 1829. I find she is labouring under chorea. The involuntary movements are not very violent, and are confined almost entirely to the left arm and foot.

She is perfectly rational; but her mother mentions, that, though naturally good-tempered, she has, since this ailment, become peevish and capricious. The account the patient herself gives of the commencement of her present illness is, that about three weeks ago she was thrown into great terror by some persons rudely jostling her upon the street in the dark; that she continued to tremble for a long while after the occurrence, and has never since felt quite well; that she first discovered "the startings," as she calls them, a few days afterwards, and they have continued gradually to increase. At times she has no command whatever over the voluntary muscles of the left side. This morning, when about to sit down, she was suddenly turned to the right side, and rolled down upon the floor, from which she was unable to rise without assistance.

The appetite is bad; the pulse quick and rather full; the bowels, naturally costive, have been particularly so of late; and much purgative medicine has been taken.

I have ordered a smart purgative to be taken every night at bedtime; and antispasmodics of ammonia, æther, and assafœtida, to be very freely used. The whole length of the spine to be rubbed, night and morning, with an anodyne liniment. The temples and forehead to be freely bled with leeches.

At the end of a fortnight I found, so far from the patient improving under this treatment, that urgent symptoms were daily increasing, and the case rapidly assuming an epileptic character. I ordered on the 31st December, that the head should be shaved, and both it and the neck very copiously bled with leeches; both to be subsequently blistered; part of the blister on the head to be kept open as an issue. A pill of ammoniuret of copper to be taken twice a day. The bowels to be kept open by the use of mild purgatives of various kinds. A stimulating liniment to be substituted for the anodyne one hitherto used.

To give a journal of this case would occupy the time of the reader to very little purpose. It is sufficient to state that no part of the above treatment appeared, even for a moment, to arrest the progress of the disease,—the difficulty of managing which was greatly aggravated by a frequent recurrence of trismus, sometimes continuing for days at a time; and even when it was not present, the power of deglutition was frequently impeded or entirely suspended.

Thus it became a matter of much difficulty to regulate the bowels; the more so that every attempt to administer enemata produced the most violent perturbations, uniformly succeeded by an accession of the rotatory convulsive movements. Towards the end of January the involuntary motions had arrived at a pitch I never witnessed in any other case of chorea. In fact, they far surpassed in oddity, in agility, and most certainly in *constancy*, the wildest feats of the celebrated Grimaldi. At one moment the legs and arms would be stretched to their utmost extent, and a very rapid rotatory motion given to them, resembling that we see practised by Indian jugglers, while the head was simultaneously rolled from side to side with a quickness it would defy even an Indian juggler to imitate: then, rising on the hips, the patient would bend down her head till it was quite between her feet, and tumble head over heels with a rapidity of evolution which gave her the appearance of a wheel in violent motion.

Her mother and I have again and again counted two hundred and fifty—several times three hundred—revolutions of the body take place without an interval; then all at once, uttering a loud, sharp shriek, she would start bolt upright upon her head, and stand as stiff as a board for a few minutes, her toes resting against the frame of the bed. In general, however, this manœuvre was repeated at the end of every fifty tumbles.

Any attempt to control her during these paroxysms only added to their length and violence; so that by my orders her bed was lined in such a manner as to prevent her injuring herself; and a person was constantly in attendance to hinder her from throwing herself out of it.

At the termination of the paroxysms I have described, she sunk down wholly exhausted, and often lay for hours in a state of insensibility, from which she in general gradually sank into profound sleep, which continued for several hours. On awaking she always complained of great, even of agonizing pains, over the whole body; yet generally mentioned that she had had “the most delightful dreams—of walking through green woods, and seeing sparkling streams of rushing waters, and lovely gardens; occasionally, however, she complained that she had been chased out of these charming places by “wild beasts and dreadful shapes:” whether correctly or not I do not pretend to say, but her mother alleged that this last complaint was never made except after an unusually violent attack of tumbling.

The mind had gradually sunk into a state but few degrees removed from fatuity; and the expression of the countenance had altered to that of downright idiocy. As I have already mentioned, the power of deglutition was frequently suspended for days together; the attempt to swallow even a little water, producing the most horrible spasms. At one time she was actually fourteen or fifteen days without taking into her stomach nourishment of any sort. To be three or four days without it, was, in her case, a common occur-

rence. As might naturally be expected under such circumstances, the emaciation was extreme. In fact, the frame at this period was merely that of the skeleton, covered with a shrivelled and hideously discoloured skin. How amazing then must be the amount of that nervous power lodged in this our mortal frame, since the morbid energy of it could, in this poor girl's case, produce exertions which would have defied a man in all the pride of youthful strength and agility to imitate!

Such then was the situation of my unfortunate patient at the end of January, 1830; and at that time it would have been impossible for me to fix upon any one symptom which was not decidedly unfavourable. I had exhausted every remedy I could think of; but all had been equally unsuccessful. In fact, some of those usually recommended in such cases, threatened, when tried in this one, to cause instant extinction of life. Such was the result on attempting the use of the hot and the cold bath. Even pedeluvium caused a most marked exacerbation of symptoms.

At one time the case wore so very much the character of hydrophobia, as subsequently excited in my mind some curious ideas with regard to the nature and treatment of that most appalling malady. Ideas the correctness of which I fortunately never have, in my own practice, had the opportunity of testing.

The medical reader who pursues his profession with true scientific enthusiasm, will be able to sympathize with me at this period, when, I frankly confess, *I knew not what to do*.—I had carried bleeding and blistering to the very utmost verge of prudence, hoping thereby to relieve the diseased nerves through the medium of the surface; but I cannot say that I ever observed the blisters procure even a temporary relief of symptoms; or that either they, or depletion, had in the slightest measure arrested the progress of the disease. Thus I had little encouragement to try external remedies; particularly as repeated and careful examinations of the spine, only tended to convince me that there was nothing organically wrong in that quarter. Nevertheless, as a last and desperate remedy, I ordered the whole back, from the nape of the neck to the sacrum, to be rubbed twice a day with ointment of the tartrate of antimony. The effect was almost immediate. After the second rubbing, she complained of great pain in the parts, and inflammation speedily succeeded. It was also remarked that she slumbered more, and had fewer paroxysms. On the second day of the application, the pustules came out profusely, and of unusually large size. On the first attempt to tumble after this, it was observed that the movements were much less agile than usual; and she shortly lay down, loudly accusing those around her of using her with most intolerable cruelty. Thus the days passed for rather more than a week, in alternate sleep; ineffectual attempts to tumble; and extreme mental irritation at her inability to do so.

I find from my notes that after the 12th February, there was no attempt made to tumble; but the involuntary movements of the

limbs continued for some time after. Even, they, however, gradually subsided. The appetite returned; the power of deglutition ceased to be obstructed; and the intellect slowly regained its natural strength and balance.

In the end of March my regular attendance on the case ceased. The girl was at that time free of all actual complaint, though still most miserably weak and debilitated. Change of air and scene, and frequent sea-bathing, in the course of the following summer, tended to restore her strength; yet she never became what could be called a *robust* person. By her mother's report, the powers of the mind were fully restored to what they had ever been; but as long as I had any opportunity of observing, her countenance retained a very painful, though perfectly gentle expression of vacuity.

I never could trace that this very distressing case in any degree arose from uterine irritation. There was no appearance in its course to countenance such an opinion; and the catamenia did not appear till the seventeenth year of the patient's age; and even then without any uneasy or unusual symptoms.

To my medical readers it must now be perfectly obvious what I meant in allusion to hydrophobia. That that most awful and afflicting malady is *nervous*, no one will deny. Confessedly hopeless by all hitherto tried means, is it not worth consideration whether by attacking it through the medium of very rapid vesication of the surface, along the cervical and dorsal vertebræ, (such as that produced by caustic potash) tending to relieve the spinal nerves from morbid action, better results might not be obtained? This is confessedly a conjecture; and one founded on analogy alone; but where a disease is so very appalling, and has hitherto proved so utterly incurable; above all, when the proposed remedy is not in itself destructive to the powers of life, I have the less hesitation in submitting it to the profession at large.

CHOREA.—CASE THIRD.

M. M., aged 16.—I was to-day, 22d November, 1829, requested to visit this girl, in consequence of an extraordinary and distressing change of temper and disposition, which her friends are inclined to attribute to some undiscovered ailment of body. She is the adopted child of a most truly worthy couple, who treat her with all the tenderness and affection of parents. From these persons I learn that she has hitherto enjoyed excellent health. She is a well-grown and very fine-looking girl of her age, and till of late had a very robust appearance and a blooming complexion.

Her disposition, hitherto remarkable for docility, cheerfulness, and anxiety to oblige, has of late changed to a dogged sullenness, extreme obstinacy, and peevish irascibility; at times almost assuming the aspect of fatuity or mania. Her bodily movements have undergone a change no less remarkable. They are now sluggish and languid, like those of a person only half awake. The appetite

is capricious ; at times wholly gone,—at others voracious : her colour and general appearance are strikingly altered to the worse ; but she denies having any pain or ailment of any description. Positively refuses to show her tongue, and with difficulty allowed me to feel the pulse, which was quick, rather full, and variable. No means of ascertaining the state of the bowels, from the dogged determination to answer no query as to health. Twitchings of the hands and feet have of late been occasionally observed ; but whether these are absolutely involuntary or otherwise, it is impossible to ascertain. Catamenia established and quite regular.

Proceeding upon the assumption, which will generally be found correct in such cases, that the bowels were torpid, I commenced a course of brisk purgatives combined with a strictly antiphlogistic regimen. So far, however, from any benefit accruing from this mode of treatment, the case daily and rapidly assumed a more alarming aspect.

The fatuity increased, the ideas becoming more and more distorted, and the language incoherent. The involuntary motions of the extremities became more frequent and violent, at length putting on the decided character of chorea in its very worst form.

All power over the muscles of volition was now lost or suspended ; so that, when not under the influence of the spasmodic excitement, the case might have been mistaken for one of complete hemiplegia. All sensation of pain was absent ; so much so, that not the most excruciating remedies applied to her body ever seemed to excite her notice, or were observed to extort a groan ; and during the paroxysms of spasm she beat her head against the wall, or pillars of the bed, with a violence which it was amazing did not shatter it to pieces ; at the same time biting and tearing her own flesh in a manner which rendered it imperative to confine her in a strait waistcoat. In short, at those times she wore all the appearance of the most furious maniac ; contrasting strangely with her dead and palsied aspect during the intervals. There was nothing periodical in the paroxysms. They varied in the time of their occurrence, as well as in length and severity. She never appeared to notice anything that was said or done around her at these times ; in fact, no one could have supposed she was capable of doing so ; yet she frequently was observed in the intervals to murmur to herself, with perfect correctness, the conversations which had then taken place. She also was heard repeating portions of Scripture and hymns which had formed part of her adopted parents' pious instructions ; but far more frequently her ravings consisted of the most horrid imprecations, and expressions of hatred to all around her.

Such was the situation of the patient at the end of the first month of my attendance. On the very first appearance of decided mania, I had ordered the head to be shaved, and both it and the nape of the neck to be copiously and repeatedly blooded with leeches, subsequently blistered, and the vesicated surface was kept open for a considerable time. The purgative system to be followed up, as

the dejections were very offensive : but no benefit, not even temporary remission of symptoms followed this treatment. To follow the case through all its details, would be tiresome and unnecessary ; I shall therefore merely give an occasional extract from my notebook.

June 31st.—No change to the better since last date. Paroxysms of spasm and mania, if anything, more frequent and outrageous, and the intervening palsy more complete. Power of speech frequently suspended ; deglutition only partially so ; the quantity of food taken during the last ten weeks is so incredibly small, that it becomes a matter of astonishment how life is maintained. Emaciation is extreme. Treatment has been the same as last month, with the addition of antispasmodics.

Feb. 28.—No improvement whatever since last date. The appearance of the patient is now that of the most frightful maniac. Eyes sunk ; flesh gone ; skin leaden-coloured and shrivelled. Not above a few ounces of food taken since last date. No thirst,—drinks very little. Catamenia still regular. Pulse very variable ; respiration undisturbed. The quantity of muscular strength elicited during the paroxysms is amazing ; and as it is generally applied to the purpose of self-destruction, watchful means are adopted to prevent this. Mild laxatives, combined with tonics, have this month been substituted for the purgatives ; frictions along the spine with anodyne liniment tried,—but with no apparent benefit.

March 15th.—No change to better or worse. I have now exhausted every remedy my reading, experience, or ingenuity can suggest ; all with equal want of success. The case has now all the appearance of either terminating fatally, or in a state of hopeless, helpless mania.”

I had repeatedly and very carefully examined the spine, in the hope of finding something to encourage the opinion that the symptoms arose from disease or disorganization there ; but in vain. The spine was to all appearance perfectly healthy ; straight as an arrow, and correct in every joint and articulation. Nevertheless, encouraged by my success in the foregoing case, which it will be observed was under treatment at the same time, I ordered the back from the cervex to the sacrum to be strongly rubbed, morning and evening, with antimonial ointment.

Several days elapsed without any effect from this ; the skin retaining its dead and shrivelled appearance. About the eighth day slight symptoms of inflammation began to appear, which rapidly extended, and in a few days more a copious eruption of pustules took place.

On the very first spasmodic attack after this, the patient uttered the first expression of bodily pain that had ever escaped her from the commencement of her illness ; and she shortly afterwards lay down quietly, as if subdued by some new and unexpected agent. Thus encouraged, I ordered the irritation of the parts to be kept up ; and I have every reason to be satisfied with the result. At first

it seemed merely the effect of extreme bodily agony by which the paroxysms were arrested ; but very soon it became evident the influence was constitutional, in as much as during the intervals of mania the hitherto palsied extremities showed some power of voluntary motion ; the eyes opened and shut naturally, and the appetite was slightly improved.

By the end of April these favourable appearances had made considerable progress ; and as the sores on the back was quite healthy, I kept them open, at the same time pressing the tonic system as far as prudence would warrant. Under this the spasmodic and maniacal paroxysms gradually diminished in frequency and severity, and by the end of May they had entirely ceased.

The appetite slowly returned, as did the flesh and colour. In the same ratio the mind, so long the victim of the wildest hallucinations, was restored to soundness and strength.

My regular attendance ceased in June. In the course of the autumn she was sent to sea bathing, and returned from that in perfect health of mind and body.

When I last saw her, in May, 1834, she was "a blooming bride," and I believe continues to enjoy good health.*

As a corollary on the mode of treatment by which the above cases were cured, I may here mention that in 1817 a young lady, aged 17, was placed under my professional care, who a year and half before had been severely afflicted with chorea in a form greatly resembling that of Case Third, and on the subsidence of this malady had sunk into what was considered by her friends as consumption of the lungs. On examination, however, I discovered incipient lumbar abscess, which quickly developed itself, and was opened again and again. The whole length of the spinal column ultimately becoming more or less diseased, my amiable and truly interesting patient sunk under her sufferings, and expired in the autumn of 1818. No *post mortem* examination was permitted by the afflicted relatives, which I very deeply regretted.

CASES WHICH COULD NOT BE CLASSED WITH ANY OF THE FOREGOING.

CASE FIRST.

E. D., a farmer's daughter ; fine, healthy-looking girl, but of a very strumous family. She had, however, enjoyed excellent health

* See Note D.

till 1823, when I attended her for a slight pleuritic attack, which was easily subdued by the usual means. In 1826 I was again called to her, being informed that she was attacked by the same complaint. I found her in bed, complaining of great weakness of the extremities, languor, pain of chest, short dry cough, breathlessness, palpitation of the heart, and severe pain across the brow. The skin was hot and dry; pulse quick and weak; tongue red; face flushed; bowels torpid; urine reported natural. Catamenia regular. Her present situation ascribed by those about her to over-exertion in harvest toils.

Suspecting the symptoms arose from nervous irritation, I examined the spine, and found it in a very tender and irritable state. On drawing my hand firmly down the column, several parts of it proved to be most acutely painful, increased pressure causing palpitation, dyspnœa, and sickness at stomach;—*yet, till that moment, no sensation had ever directed the attention of the patient to her spine.* In the situation of the fifth and sixth dorsal, the bodies of the vertebræ could not be distinguished; the space presenting merely a soft spongy feel, acutely painful to the touch. At this point there existed slight anterior curvature of the column.

How long this had been going on, it was impossible for me to ascertain. The patient was of a most gentle, uncomplaining disposition; her father harsh and exacting, having a large farm, which it demanded the utmost exertions of his family to manage. She could only say she “had not felt well for a long time before she complained, but could not tell what was the matter with her; and was often ready to faint without being able to say why.”

I ordered constant rest on a hard mattress, with a very low pillow; great attention to the bowels; blisters on each side of the spine, and over it; frictions; mustard poultices; issues; in short, I exhausted in succession every remedy my experience or my ingenuity could suggest; but all in vain. Nine years have elapsed since I first saw this very interesting case; and at this moment—at least, when I last heard of her—the unfortunate sufferer languishes in hopeless, irrecoverable misery. To detail the case would fill a volume. It has in turn assumed the forms of hypertrophia; phthisis; amaurosis; gastritis; enteritis; hepatitis; hysteria; and finally epilepsy. Each of these has successively yielded to the remedies, not to give place to health, or even to alleviation of torment, but to some new form of the hydra-headed malady.

Issues have been constantly kept open, alternately in every part of the back. The moment one was dried, if another was not previously opened, the sufferings of this meekly enduring being were aggravated in the most extraordinary degree; agonizing pains in different parts of the body, and convulsions, frequently supervening.

It is evident that she must now soon sink under the accumulation of bodily disease; for the powers of the stomach are so debilitated, that she cannot swallow food sufficient to support life. She has not for a long time been able to raise her hand to her head; her hearing

is at times painfully acute, at others she is wholly deaf. Her sight is decayed ; her body emaciated to a deplorable degree ; and even the powers of her mind are greatly weakened.

I never met with, or read of, any case at all resembling this, except one which was mentioned to me by my valued friend Mr. Torbet, of Paisley ; and it was even more interesting than the above, —in as far as, occurring in the person of a highly cultivated and refined young female, the mind partook in an extraordinary degree of the morbid phenomena.

CASE SECOND.

M. T., a farmer's daughter, aged 16 ; tall, well-made girl.—Applied to me in July, 1833, when I was myself a great invalid. The history of the case given by the girl's mother, who accompanied her, was, that for two months she had been drooping ; complaining of constant languor and inability to work, or even move about as usual, owing to pains in the limbs and palpitation of the heart, produced by every attempt at exertion : of late, severe pain at the sternum, and short dry cough, had supervened on other symptoms, as also had copious night sweats, frequent nausea, aversion to food, and constant acidity of stomach. The eyes were dull ; the skin sallow ; bowels torpid, Catamenia established and regular.

On examining the spine, I found the fourth, fifth, and sixth dorsal vertebræ painful to touch. Slight pinkishness of skin over the fifth. Patient sobbed and complained of increased uneasiness when the hands were run from this point towards the sternum. Slight tenderness of the sacral vertebræ.

Treatment ordered exactly similar to the foregoing cases, with the addition of food more delicate and nourishing than the girl had been in the habit of using, and a small quantity of wine daily. She convalesced rapidly, and recovered perfect health.

CASE THIRD.

A most extraordinary case came under my care in autumn, 1833. The sufferer was a lady of a highly nervous temperament. In the month of June previous, she had had an attack of pleurisy, which was subdued by the usual means. Before she was quite recovered, and while labouring under great mental distress, her voice suddenly became extinct, and she was seized with fits of what cannot be described as coughing, for it was literally *barking*—exactly resembling that sound from a middle-sized dog. In a few days this was followed by spasmodic croup, which generally attacked her through the night, and so violently that she frequently sprung out of her sleep to the middle of the floor, quite unconscious of what she did. The face became tumid and purple ; the eyes started in their sockets ; and the croupy wheeze was so loud as to be heard over the whole

of a large house. On the subsidence of the spasm, a few mouthfuls of blood generally came up.

She underwent a variety of treatment; the throat was very frequently leeches, and was nine times blistered; the last blister was dressed with mercurial ointment. By these means the spasmodic attacks were ameliorated in violence and frequency, but by no means cured.

When she came under my care, she was able to go about as usual; but never escaped a single night the attacks of her "nocturnal enemy," as she called the attacks of spasm and barking. She complained also of a constant sense of obstruction in the throat, but neither swelling nor inflammation could be detected by the most careful examination. Her mind was deeply affected by the apprehension that she was to be cut off in some of the paroxysms.

Finding that she never experienced them but when in bed, I was led to the inference that they proceeded from irritation of the cervical nerves; and ordered very frequent frictions, first with anodyne, and then stimulating liniments, from the back of the head down to the lower dorsal vertebræ; joined to tonics, the use of the tepid bath, and change of air. In about a month she was relieved from her distressing ailment, and has never experienced any return of it.

I consider this as a very remarkable instance of a disease resisting treatment applied at the seat of it, and yielding at once to even less active remedies, applied at the roots of nerves ramified upon the diseased organ, and the surrounding tissues.

CASE FOURTH.

When in Cheshire last summer, I was consulted by a gentleman, who stated to me that he had, in the course of the previous winter and spring, been treated first for tendency to apoplexy, and then, by a very smart course of mercury, for liver complaint; but was still in very bad health. He was tall, and well-formed, and must, when in health, have been a very athletic man. He had been in the habit of taking a great deal of exercise on horseback, and mentioned having, about a year before, been thrown from his horse, when he received a twist in the back, which continued to annoy him for some weeks.

On examining him, I could not find the slightest trace of liver complaint, or any other visceral disease. Neither did the symptoms he detailed give me any idea that the head had been the seat of disease, however severely it might have sympathized in the general disturbance. He had had most dreadful head-aches, with which he was still occasionally afflicted. The eyes were in a high degree amaurotic, and he had frequent giddiness and distorted vision; but if these are infallible proofs of apoplexy, then eight out of every ten of the preceding cases must have been apoplexy. He had been,

and still was, extremely jaundiced in his complexion ; he had pain of chest, and also in the right side, extending round to the dorsal region. Observing, while we stood together, that the left shoulder was very perceptibly higher than the right, I requested permission to examine the spine, and found a curvature of an inch and a half from the perpendicular, extending from the sixth cervical, to the lower lumbar vertebræ. Handling of the spine, or pressure down each side of it, elicited a most uneasy and peculiar sensation.

Here, to my mind, was reason sufficient to prove that this gentleman's sufferings had arisen solely from irritation of the spinal nerves; and that the diseases for which he had been treated were merely pseudo ; the functional derangement of the liver arising, in fact, from the pressure upon it occasioned by the curvature of the spine. One symptom, which I have seldom found absent in advanced cases of nervous or spinal irritation, had been present with him to a very high degree, viz., depression of spirits, amounting to hypochondriasis in its worst form.

This gentleman appeared at the time fully satisfied with my opinion, and promised to adhere to the plan of treatment I laid down for him ; but I have never seen nor heard from him since ; and have understood that he never did attend to my advice, and that he is still in bad health.

This is a situation in which medical men are very often placed ; and of a truth it is a hard one. A person consults us ; we give him our opinion and advice ; he listens to it ; goes away ; and forthwith follows his own devices, in no one point attending to the directions we have given him, or doing so only by fits and starts, so as to have no permanent good effect ; and then when he gets worse, or at least no better, he or his friends say, "Oh, Dr. ———, and Mr. ———, so and so, were consulted ; *but they did no good !*"

CASE FIFTH.

Mrs. H., ætat 42. I was first consulted by this patient in 1824. The history she gave of her case was, that for a length of time her health had been in a very declining state. She was originally of a robust constitution, and had had a large family ; but two years ago she became subject to occasional neuralgic pains in the back of the head and neck ; these quickly increased to a most agonizing degree, and were accompanied by rigidity in the muscles of the neck ; so that any attempt to move the head caused a darting and excruciating pain down the left arm, to the palm of the hand and finger-points. By degrees the fixed pain in the vertebræ extended downwards to the three upper dorsal, and the darting pain extended to the left leg and foot, accompanied and followed by a thrilling, yet numb sensation. By degrees these sensations became permanent, and total paralysis of the left hand and arm, and partially of the left leg and foot, slowly supervened, her general health becoming at the same time extremely bad.

There was constant gastric irritation, with frequent severe pain of stomach. The appetite was poor and capricious; the bowels torpid; pulse rather quicker than natural; eyes amaurotic; flesh wasted; complexion faded and sallow. The head was drawn to the right shoulder, and as immoveably fixed there as if the cervical vertebræ had been anchylosed; none of the muscles of the face were in the least affected.

Such was the melancholy situation of this patient at my first visit to her. I found that she had, without benefit, undergone a most tedious variety of medical treatment, such as repeated applications of blisters and leeches to the head and neck, depletion, and cathartics; all which had reduced her to a state of great debility.

I ordered the whole length of the spine, but more particularly the pained portion of it, to be treated with frictions twice or thrice each day, with anodyne and stimulating liniments: the same to be extended to the paralysed limbs. Tonics to be freely exhibited: the diet to be light, but nutritious.

Under this treatment a very satisfactory improvement took place in the general health, but little in the paralysis of the limbs. She became pregnant; passed through gestation without any unusual feelings or occurrences, and in December, 1824, after an easy labour, I delivered her of a very fine, healthy child. During the whole time of labour, which was very rapid, there was no alteration in the rigidity of the muscles; the upper part of the figure remaining all the while as immoveable as if formed of wood or stone.

Shortly after parturition she became affected with general dropsy, under which she suffered severely, and became extremely reduced.

She ultimately recovered, however, and a few weeks after was seized with dysentery.

On her recovery from this, I resumed the tonics, and other treatment for the spinal irritation, which had in the interval threatened to assume somewhat of an epileptic character. I had at length, after using in large quantities, externally and internally, almost every variety of tonic, the satisfaction of seeing this very obstinate case so far give way, that she had in a great measure recovered the use of the leg and arm, when she again became pregnant, and, exactly two years after the birth of the former, she had another remarkably large, healthy infant. The labour and delivery were very easy; but the recovery was tedious, and the debility very great. In due time the frictions on the spine, &c. were again resumed, with good effect. By degrees the general health was quite restored, and she became able to go about and attend to her domestic concerns with very tolerable ease and comfort; though there was, and still continues to be, a slight drag in the left foot, and a want of nimbleness in the movements of the fingers on the same side. The rigidity of the muscles of the neck was completely cured; but there remains a slight paralytic turn of the head to the right side. She has had no more children.

Increased experience in the treatment of such cases has led me

frequently to regret that I did not, at my first attendance on this one, insert a seton over the upper cervical vertebræ. I am now convinced I should, by this means, have made a much speedier and more complete cure.

CASE SIXTH.

Mense Februario, anno currente, ad longinquitatem vocatus sum, meam sententiam dicere in re hujuscemodi.

Domina ———, mulier nupta (ætate 28), quæ unum puerum peperit, pluribus mensibus, cum ægritudine gravissima affecta erat; quæ ægritudo, ut illa infelicitè putavit, ab origine syphilitica orta est. Hæc opinio infortunata, sensus adeo acerbos, tantasque rixas domesticas excitaverat, ut, eoque tempore, et temporibus multis antiquam eam primo viserem, ea seipsam separatam à conjuge tenuerat. In hæc sententiâ medicus convenit, et me certiores fecit, se putare illam affectam esse cum unâ multarum rationum hujus morbi valde odiosi. Ego illam reperi multa dejectione animi laborantem; cruciamenta membrorum habuit, sed præcipue artuum, veluti genuum, talorum, carporum, dolorosa inflatione partium nonnunquam superveniente. Dolor erat fixus, urens, et ad mensuram dimidii majoris nummi argentei finitus, in regione læva iliaca; ad quem mitigandum, hirudines, epispastica aliaque remedia hujusmodi frustra tentata fuerant. Leucorrhæa aderat, et emissio decolor æque ac fœtida. Investigando diligenter, inveni procidentiam uteri esse; os tincae, fere pollicem ab ore externo distari; tamen nullus dolor, nulla molestia excitabatur in partibus internis ex hac investigatione; nisi quod quum digitus premeretur super sedem nervorum iliaco-rum, ægrota subsiliret, atque de membrorum angore dolente usque ad pedes quereretur.

Spinâ exploratâ, nullum aspectum morbi, nullam mollitudinem inveni, donec ad partes inferiores lumborum, etiamque ad partem superiorem sacri pervenissem, ubi curvatura anterior formata à parte superiori sacri, vertebrarumque inferiorum lumborum aderat, sensu inflationis relicto in vacato spatio, quo compresso, erat actus sentiendi angoris extremi, non tantum in loco affecto dolore (in lævâ iliicâ regione videlicet,) sed etiam quasi uterus trans externum foramen vaginæ cogendus foret; porro, autem, dolores uti jaculantes et tinientes in femoribus deorsum usque ad plantas extremas pedum. Pressura manuum alteri cristæ ilium, vel utrisque adhibita similem sensum ciebat; hoc comitato quodam sensu sicuti æquipondium corporis dirutum esset, et ægrota super dorso dejicienda futura. Quum hæc inquisitio completa fuisset, ego, cum ægrota ipsi, tum medico, meam certam opinionem nuntiavi, nullam syphilis contagionem quocunque de genere adesse; tota morbida phænomena oriri simpliciter ex pressura vertebrarum è loco dimotarum in uteri nervos ac ejus ligamenta.

Multum argumenti necesse fuit, multum et varium colloquium cum medico priusquam ad meam sententiam illum adduxi, et illi

persuasi, ab usu nimio hydrargyri abstinere. Ultimo, autem, rationem meam tractationis adoptavit; et hodie sextili (mense Augustali) ægotam ad valetudinem integram videre gaudet; animo dominæ etiamque omnino liberato ab notionibus falsis quibuscum inquietatus fuerat; simul ac adeo pace domesticâ restauratâ. In nonnullis causis, procidentiam uteri vel connexam cum incurvatione in parte inferiore spinæ, vel hâc causâ, exorientem inveni; et in causis irritationis nervorum spinæ, Leucorrhœam sæpissime adesse.

REMEDIAL TREATMENT.

I HAVE laid the details of my practice so very freely before the reader in the foregoing Cases, that little remains to be said on this subject, except in a general point of view.

It will be observed that the first time my attention was roused to the fact of nervous irritation simulating or occasioning organic disease, was in 1818, while treating a case (N. 1) of Phthisis; and it will also be observed how extremely crude and inaccurate were my ideas as to the proper treatment; inasmuch as I supposed, that by exhibiting a course of medicines such as are usually given in spasmodic and nervous cases, I should succeed in subduing the pulmonary diathesis. The aggravation of every urgent symptom which supervened on this treatment, did, for a time, most completely puzzle and distress me; but at length reflection convinced me that when a disease arose from nervous irritation, it was most probable that the morbid influence causing that irritation existed at the roots or ganglionic junctions of the nerves affected; and therefore that, to succeed in expelling it, we must apply our remedial treatment as nearly as possible to these roots or ganglions. But where, or how, was to be found the readiest access to these? Not through the medium of the stomach, it would appear, for there I had failed!—And the surface readily presented itself to my mind, as the only other medium of communication which, in the present state of our knowledge, we have with the nervous system, in a remedial point of view. The result of this idea is already before the reader, so that I need not repeat it here.

From that time, up to the present moment, I have been engaged in studying the subject in all its bearings, with the most incessant assiduity; and let me here be permitted to say, that at the time, and for long after I entered on the study, I was uncheered by a single ray of encouragement, either from the practical members of my own profession, or from those brilliant discoveries as to the anatomy and physiology of the nervous system, more recently given to the world by the physiologists of France, Italy, and Great Britain.

In the whole result of those seventeen years of study and prac-

tice, I find not one single reason to alter my early opinion, that it is on the medium of the surface we must *principally* depend in the cure of nervous debility or irritation. In the sulphate of quinine, and the salts of iron, zinc, and copper, as well as the vegetable bitters combined with alkalies, and gentle laxatives, I have found most admirable adjuncts ; but never yet did I succeed with these alone, in curing any case of nervous or medullary irritation which had advanced so far as to assume the character of any organic disease.

The absorbent powers of the skin, and the influence of such absorption, even on the functions of the viscera, have been observed from the days of Hippocrates downwards, and are so fully known and established as to require no argument from me to prove their existence. It may not, however, be inappropriate to produce here a few familiar examples of the fact.

If garlic, onion, mint, or, in short, any strong-scented plant, be handled, placed in contact with the soles of the feet, or rubbed smartly upon any part of the body, the effluvia of it will, in a very short time, be exhaled from the lungs by the breath ; from the whole surface of the body by the perspiration ; and be very perceptible in the odour of the urine. The same thing will happen, even more rapidly, with sulphur. There is not the slightest reason to suppose that these substances, or any of their component parts, are more readily absorbed by the skin than any other ; it is merely that their volatile aura renders their presence more distinct and undeniable. We know, in fact, that the skin is capable of absorbing so large a quantity of simple cold water, and directly conveying it to the circulating mass, that persons travelling under the influence of raging thirst, have found that agonizing sensation in a great measure relieved, by exposing their naked bodies to a hearty shower of rain.

I sincerely hope, and believe, that the time is not far distant when such facts as these will be turned to the improvement of the curative art, more usefully and more extensively than they have ever hitherto been.

While we keep the above remarks in view, let us recollect the very close connexion and communion existing between the skin and the nervous system ; reverting at the same time to the fact that the vascular and absorbent systems derive their energy from the nervous ; and we shall see reason to conclude that it is solely through the agency of the latter that dermal absorption takes place ; and from this it inevitably follows, that whatever is absorbed must have a very direct nerve influence.

Not only do the whole of the spinal nerves send filaments directly to the skin, but the cerebral nerves, and those of the sympathetic system, do the same, either directly or by anastomosis. If any uninitiated person wishes to ascertain for himself to what degree the skin and the nervous system are connected, let him recollect that in the nerves alone the sensations of pain or pleasure reside ; and, taking the finest needle that ever was made, let him try if he can find the breadth of its point, in any part of his own

skin, where pain is not produced by its insertion. There is no danger of the experiment being too often repeated.

What the external applications are, by which we may hope most surely to alleviate symptoms, or effect a cure, in cases such as those we have had under consideration, is a subject to which, for the last seventeen years, I have given the closest and most unwearied attention.

To begin with those which produce cuticular irritation, such as blisters, ointment of tartarized antimony, and the ammoniacal and terebinthine liniments, I have given them all the fullest trial, and found them all useful, each in their own way and time, with the exception of the terebinthine, the stimulant properties of which I have found more than counterbalanced by their tendency to produce irritation of the kidneys and neck of the bladder.

To the antimonial ointment I am by no means partial ; yet the foregoing cases, particularly the Second and Third of Chorea, will show that I have occasionally succeeded in making a cure with it, where both blisters and issues, as well as depletion, had entirely failed. There may be two reasons for this : it is generally applied to a much larger surface, and the discharge produced by it is from a perfectly different source, and of a different character, from that produced by blisters, approaching much more nearly to the nature of pus. The ordinary action of cantharides is confined to the epidermis, while the antimony, penetrating the cutis, exerts its influence more directly upon the nervous and muscular tissues.

My objection to its use arises from the capriciousness, as well as harshness, of its operation ; the great and extremely irritating pain which it occasions ; and the severe sickness of stomach consequent on its absorption into the system ; often producing effects, in a delicate frame, hardly less distressing than the disease it was intended to remove. Moreover, in cases where I have found its application a complete failure, I have succeeded with what, *à priori*, appeared a much less efficient agent. Nor could I ascribe this altogether to idiosyncrasy ; it rather seemed to me to arise from some as yet unexplained difference in the nature of nervous disorders.

Ammoniacal liniments I have used extensively, and with the very best effects ; yet they too have occasionally failed me ; and they have this disadvantage, that, in cases where it is not desirable, they irritate the skin, and produce an eruption.

To discover an external application which would stimulate, or, in fact, act as a tonic on the nervous system, without at the same time being an irritant, has been for many years the object of my most anxious and indefatigable search. Within the last twelve months, I have seen reason to believe that I have succeeded in extracting such from a very simple substance ; but the cases on which I have as yet tried it, though perfectly conclusive in themselves, do not, in my opinion, form a sufficient warrant for my, at present, laying it before the profession, or the public. Few things are more truly

disgusting than the pompous fracas with which, in the present day, new remedies are thrust into notice, by persons whom the experience of others proves to have been actuated, in their reports of the extraordinary virtues of each successive trash, either by a blind enthusiasm, or by motives far less justifiable.

Simple friction, even without any rubefacient, over the seat of the principal nervous centres, and over the whole thorax and abdomen, I have found of very important service, particularly in the earlier stages of nervous debility. But, to render friction of any use, whether with or without rubefacients, depends entirely on the steadiness of its repetition, as well as on the length of its application. It is not rubbing the spine, or the seat of the sympathetic system, or the thorax, for a few minutes at a time, and then wholly neglecting it for days or weeks together, that will avail. Friction, to be of any use, must be continued for an hour at a time, at least twice, if not three times, each day*, so as to prevent the nervous system from losing, in the interval, the impetus given to it; and if not so practised, it may as well be omitted altogether. Nor, even with this attention to the steadiness and frequency of its application, must it be expected that the sanitary influence will become immediately evident. It stands upon the face of the foregoing Cases, that many of them were months, none less than six weeks, and several of them a whole year, before they were *thoroughly* cured. Yet, amongst forty,—with the exception of two which were fatal, (and be it observed that those two were very far advanced before they came under *my* care,) and one which proved incurable,—the *whole* finally regained perfect health, and are at this day alive to testify the truth of what I say. Perhaps it will not be considered irrelevant if I here mention, that these two are the only patients I ever lost while under treatment for spinal or nervous irritation, and I have treated some hundreds. I do not allude to this from any contemptible vanity, but simply from the wish to show how tractable such cases are, when met with patient perseverance, and a due admission as to their real nature and source.

Having already mentioned the medicines on which I principally rely in the treatment of these cases, I have here nothing of any importance to add, except to warn my younger brethren, who may now turn their attention to the subject, against the use of mercury, in any of its forms, in treating spinal or nervous irritation. Through-

* It will generally occur, after this has been persevered in for a few days, that the skin either breaks, or becomes so very tender, that the stimulating liniments cause extreme pain and irritation. The friction should not on this account be discontinued, but simple almond oil be used under the hand till the dermal irritation ceases, when the liniment is again to be resumed.

I have frequently heard patients complain of intolerable uneasiness at the commencement of friction, even when the skin was not tender; but this uniformly yields to perseverance, and is succeeded by a grateful and soothing sensation. The frictions should at all times be light and rapid, but particularly when this extreme irritability of the surface is present.

out my whole experience I have found it most decidedly injurious; so much so, that at one period I consistently refrained from prescribing even half a grain of calomel *per diem*; and this arose from my finding that the most irksome and intractable cases I ever treated, were those which had been mercurialised previous to their coming under my care. Motives of delicacy towards others have induced me to suppress not a few of these, some of them of very recent occurrence. On more mature reflection and extended experience, I do now readily admit, that where functional derangement of the liver or bowels has been produced, as in Cases First and Second of "Diseased Liver," a cautious exhibition of the Blue Pill, alternated with mild laxatives, will be found not only beneficial, but perfectly indispensable.

Excessive purgation is another measure which I have found very decidedly hurtful.

If the bowels are loaded, or more than commonly torpid, of course they must be relieved, and completely cleared out: but instead of doing this by the more violent drastics, I would recommend moderate purgation, joined to the daily use of Juke's apparatus; and when the fæcal matter lodged in the *primæ viæ* is thus got rid of, very gentle laxatives (such as will keep the bowels soluble, but not *purged*), is that practice which I have uniformly—particularly when I combined the laxative with extract of Hyoscyamus—found most successful.

The use of the Buxton baths I have found of the most indubitable efficacy, in every case in which I have had it in my power to send a patient to them. Nor is it, in my opinion, difficult to account for their powerful sanitary influence in all nervous cases.

The Buxton waters yield, on chemical analysis, little or nothing which can account for their extraordinary and undeniable effects on the human frame: but it ought to be remembered, while considering this subject, that they hold in combination a large, but extremely evaporable, portion of azotic gas, which, under the more popular name of the "gas of Paradise," is well known to have, when inhaled by the lungs, so powerful an effect on the nervous and cerebral systems, as to produce excitement, or delirium, no less delightful than it is transient. How, then, can it admit of a doubt that this same gas, daily introduced into the frame, through the gentle but extensive medium of dermal absorption, must produce the most stimulating and beneficial effects upon a debilitated nervous system?

I have seen a single glass of the water of St. Ann's Well produce, in a delicate and nervous female, the same exhilaration as a glass of champagne would have done; and in another, of a less mobile nervous temperament, flushing of the face, unusual brilliancy of the eyes, with throbbing of the temporal arteries, and hurried respiration; circumstances, these, which render the incautious use of the Buxton waters as injurious in some cases as they are beneficial in others.

The water of the Lion's Mouth Well, I have found a much more useful adjunct to the baths, even in nervous cases, than that of St.

Ann's. It is powerfully tonic, holding in solution a large proportion of carbonate of iron; but during its use (which never should exceed a pint *per diem*, taken at three periods), attention must be paid to regulate the bowels by the use of a gentle laxative, as it almost inevitably produces costiveness.

In addition to the natural properties of the Buxton waters, the mode of their application by the *douche* is a most admirable mechanical addition to their efficacy, producing as it does the same stimulating effects as friction, but in a much higher degree. It ought to be daily applied along the whole length of the spine, as long, and in as strong a degree, as the patient can endure; until a pleasing glow is excited over the whole back. And I will venture to say, very few persons labouring under spinal irritation will do this for ten days successively, without experiencing the most marked benefit.

Change of air and scene, particularly if it be to a very dry atmosphere, is a measure which ought never to be lost sight of in treating cases of nervous or spinal irritation. It is only when a very considerable advance towards a cure has been made, that the sea-side, or sea-bathing is advisable. I have always found the greatest benefit accrue from having my patients as much in the open air as their strength will admit. The very utmost care, however, ought to be observed to prevent exercise ever being pushed the length of fatigue; because every time a person labouring under irritation of the spinal nerves is fatigued, he has lost just so much ground on the road to recovery.

Gentle exercise in an open carriage, or sailing in an open boat, above all, if the recumbent posture can now and then be assumed, are strikingly efficacious, when the cure has made a certain advance; but too often these very measures prove destructive, by being adopted at a too early period of the complaint, or an unsuitable season of the year. And here I would wish most particularly to impress upon the minds of my non-medical readers, if ever I have any such, that, as it requires the nicest discrimination of a medical man, who has spent his life in the study of the subject, to decide at what time, or which of these remedial measures it is most advisable to adopt; so, if they take it upon themselves to decide the point, the chances are ninety-nine to a hundred that they act in such a manner as shall prove highly—perhaps *irremediably*—injurious to the patient.

To keep the mind in an easy and cheerful frame, I have always found to be of the last consequence. Anxiety, deep thought, the indulgence of the angry passions, or habits of abstruse reasoning, are fatal barriers to a cure. Light reading, or any pursuit that occupies the attention without fatiguing the mind, must be had recourse to: great judgment, however, is required in regulating this point; for what is abstruse study to one, is light and agreeable reading to another. I have known absolute disgust and low spirits induced,

in a patient of a serious and contemplative mind, by novels and works of fancy being enforced as his only intellectual diet.

How it is that these complaints and their cure are so powerfully influenced by the mind, it is quite beyond our power to comprehend or explain. Indeed we have good reason to apprehend that the *modus operandi* of mind, upon the material frame in which it is lodged, will for ever elude our most anxious researches. It appears to be an arcana which our Creator, perhaps to keep us humble, has eternally sealed against our prying curiosity ; and therefore we must rest satisfied to watch its effects, without knowing their exact causes, and endeavour to make them as much as possible subservient to a cure.

While we pay the utmost attention to prevent a patient making heedless or undue exertions, we must be no less careful to prevent their thoughts from dwelling on their own situation, or watching every little turn of sensation. Nothing can be more fatal than such a practice. Surrounding friends should never on any account discuss the patient's state or symptoms in his, or more especially in *her*, own hearing; or repeat what this or that doctor has said ; or, in short, allude to any thing that can keep uneasy apprehensions present to the mind : and let me also suggest, that the medical attendant's opinion and directions ought at all times to be delivered with a firmness of manner which will admit of no dispute, either as to the degree of obedience to be paid to them, or indecision as to their exact meaning and tendency.

CONCLUDING OBSERVATIONS.

IT appears to me quite impossible for even the most bigotted or most ignorant members of our profession to shut their eyes to the fact, that owing to the light of anatomical certainty thrown upon the observations and experience of practical men, by the splendid discoveries of Bell and Bellengeri, a most important change is about to take place in our views as to the pathology of the nervous system. For my own part, I most confidently anticipate that the time is at hand, when all the rubbish of "Anomalous Cases," and "intractable and *mysterious* diseases," will be swept from our periodical literature ; and when "systems of nosology," only calculated to obscure the subject they pretend to illustrate, will be left to rot unnoticed and undisturbed on the most inaccessible shelves of our libraries.

Nevertheless, I am fully aware that many, very many of the profession, will stick, with all the tenacity of limpets, to the rock of ancient usage ; and meet these new views, and every thing that goes to support them, with the same virulence and hostility as if

the calm examination of their claims to attention, or the testing of their accuracy, were to inflict a positive injury on the dearest interests of society ! This, unfortunately, is "part and parcel of human nature." It has been the fate of every new discovery, from Galileo downwards ; therefore it should excite neither surprise, mortification, nor animosity, if it is the same in the present instance.

Many reasons will combine to repress, for a time, the progress and the practical usefulness of these new ideas. Some will turn a deaf ear to them, lest they should be put to the trouble of studying, in order to comprehend them ; not a few are incapable of comprehending them at all ; and others there are, who will refuse to follow, simply because *they* were not the first to lead ! Another, and, I regret to add, a very respectable class of the profession, will, nay, I am aware, *do already* turn from the subject with cold disdain, because, as they are pleased to say, "*it has been rendered quite disgusting by quackery and empiricism.*" Of all objections, this appears to me the most futile !—Most true it is, that *empirics* have been the first dimly to perceive, and to benefit from, by *mystifying*, the very truths that are now in progress of being scientifically demonstrated ; and by fearlessly stumbling through right and wrong—"good report and bad report"—such persons have speedily realized fortunes, one tithe of which no *regularly educated* or *truly well principled* member of our profession ever acquires ;—but is this a reason why we should refuse to study and investigate the truths of our science ? As well might we refuse to look through a telescope, or refuse to believe in the laws which regulate the motions of the heavenly bodies, because in their day judicial astrologers made these, and the sublime truths deducible from them, subservient to the purposes of a gainful imposition ! Or, what comes nearer still to our own art—Should we refuse to believe in the splendid discoveries of modern chemistry, because, actuated by selfishness and cupidity alone, the ancient alchymists were the first to cross the threshold, and to obtain a glimpse of the future glories, of that noble science ?

Prejudice is the bane of advancement in every department of human knowledge ; but in none does it tell more heavily against the weal of our common nature than in our profession ; for never will any man practise it with either true dignity or real usefulness, till he casts from him every *trammel*, whether of education, theory, or authority—until, in short he hears with his own ears, sees with his own eyes, and judges with perfectly unbiassed mind.

That I have always been able to do so, I am very far from asserting ; the foregoing cases would contradict me, if I did ! In many of them it is apparent, what I do not wish to disguise, that I got completely confused, and at a loss what to do, before the simple idea occurred of trying whether the morbid influence was not lodged at the roots or ganglions of the nerves, whose extremities were ramified upon the affected organs.

To find spasmodic diseases yield more readily to this mode of treatment than to any other, appeared so natural, that it required no second lesson to impress my mind with the fullest conviction of the fact. But it required much and repeated experience ere I became so far unprejudiced as to see and believe, that diseases bearing no resemblance to spasmodic, and which had never been considered as peculiarly connected with the nervous system, were, no less than the others, originated there, and amenable to the same treatment. This conviction once obtained, the extensive views in pathology which it opens, and the ease and correctness in diagnostics resulting from it, cannot be duly appreciated by any but one who, like myself, has struggled, alone and unassisted, out of darkness into comparative light.

If there be one department more than another where the value and importance of these views is felt, it is in treatment of the diseases of women and children, whose highly mobile temperament renders them peculiarly liable to ailments originating in the nervous system,—ailments which, by neglect or mismanagement, may sooner or later degenerate into constitutional or organic disease.

In the treatment of those convulsive attacks with which infancy and childhood are so frequently afflicted, I have been peculiarly successful, by an unfailing and assiduous attention to the principles laid down in the foregoing pages.

That convulsions in children frequently have their origin in dentition, in worms, in acid, or crudities, existing in the stomach and bowels, causing irritation of the nerves ramified upon these viscera, is most true ; but it is not the less true, that *through the medium of the nerves alone the convulsions are produced* : and it therefore follows, that while we endeavour to clear away the offending causes, we must no less assiduously attend to restore the offended nerves to a healthy tone. But very many cases come under our notice where none of the fore-mentioned causes are found to be in existence, and yet the convulsive attacks are in these cases more intractable, and more frequently fatal, than in the other ! And here I venture to assert, most fearlessly, that in such cases examination or experiment will prove the morbid influence to exist at the roots of the spinal nerves, or in the ganglionic system ; and that if it has not existed so long as to occasion, by its reaction on the brain, any structural disease there,* it will uniformly be found to yield to a patient application of remedies such as are suggested in the foregoing pages. Not that I would be supposed to hint that no better can or will be found—far, very far from it ! Let it never be forgotten, that these suggestions are the result of the observations of one single *unassisted* individual in *private* practice.

There can be nothing more certain than that morbid action in the medulla, or spinal nerves, reacts upon the brain, to the production

* From the delicacy of the structures in infancy, it follows that this result takes place much more rapidly in it than the adult state.

of delirium, mania, and structural disorganization ; and it surely needs no argument to prove what an important light this fact, once fully ascertained, throws upon the pathology and treatment of mental maladies. In all the three cases of Chorea which I have given, the brain was evidently affected ; in the two latter, it was so in a very high degree. In No. 2, the patient wore, for many weeks, all the characteristics of furious mania—no inhabitant of Bedlam ever did so more completely. Yet no sooner were the spinal and sympathetic nerves relieved from morbid influence, than the irritation of the brain subsided in the same ratio, and the patient perfectly recovered her senses, and all her mental powers. And let it be remembered, that previous to this the curative treatment had been directed to the head itself, without any good effect whatever.

Were the state of the spinal and sympathetic nerves more anxiously investigated than has hitherto been the practice, at the commencement of mental maladies, I am much inclined to think, and I speak from experience when I venture to hint, that there would be fewer “incurable” cases found in our lunatic asylums.

My ideas on hydrophobia I have already stated, so that I shall here only say, that time and experience since the case which originated them took place, have only tended to brighten and confirm my hope, that a remedy may, at no distant period, be discovered for that hideous malady.

I anticipate that, as our knowledge advances, it will be proved that not only this, but epilepsy, and all diseases of that class, arise primarily from irritation of the cord ; and that the brain, especially in the earlier stages, is only secondarily affected, except in cases where, from malformation, injury, or accidents, such as spiculæ of bone growing inwards,* it becomes directly the seat of structural disease. I have no hesitation in stating my opinion that in all cases of epilepsy, where the aura epileptica occurs, the medulla spinalis will be found the seat of irritation.

To No. 6 of the non-classified cases, I would wish to call the particular attention of my medical readers. It is a most important one, inasmuch as it presents an instance (and it is hard to say how frequently such may occur,) where a very clever and experienced member of our profession, and also the patient herself, were led to form a most erroneous opinion as to the nature of her malady. An opinion, which, wherever it takes possession of the mind of a married lady, must not only occasion the most acute mental agony, but prove utterly subversive of all domestic peace and comfort ; at the same time that it destroys the character and respectability of a perhaps innocent individual : not to mention that lasting ill health, or death itself, may result from the well intended, but mistaken, treatment prescribed.

It would be most uncandid in me, as well as unjust to the medical attendant of the family, did I here conceal, that so strong were the

* Note E at end of vol.

pseudo symptoms in this case, that had it not been for the close and long continued attention I have given to diseases of the spine and nervous system, keeping me right in my diagnosis, I should most inevitably have agreed with him, and heartily coincided in his proposed mode of treatment.

There is another disease, viz. Plegmasia Dolens—on the purely nervous origin of which, I wish here to express my decided conviction. I conceive this to be, *in reality*, a very rare disease; because, in the course of extended practice in puerperal cases, it occurred to me but in very few instances. These, however, were sufficient to convince me, that all the painful and intractable phenomena of this disease were plainly traceable to pressure or other injury of the nerves, either before or during parturition; causing a deficiency of energy in the nerves themselves, and, consequently, languor and inefficiency in the action of the vessels dependent upon them; hence the pain and intumescence of the limb; and, of course, when once intumescence takes place, it *must* react on the nerves to the increase of all painful and morbid phenomena. In the few instances in which it occurred to me, I found leeching at the groin, and over the whole sacral region, and frequent frictions with anodyne and stimulating liniments on the sacrum, the groin, and the affected limb, most decidedly beneficial: scarification I never attempted.

Before taking leave of my readers for the present, I trust I may be permitted to express a hope that the cases I have laid before them are of such a nature as to bear me out in my assertion, as to the great and hitherto ill understood influence of the nervous system, in occasioning organic disease. At present, we are but on the very threshold of this discovery; and attention to the practical part of the subject has been confined to a few individuals. Who, then, can doubt that, when the great body of the profession become duly impressed with its importance, the most rapid advancement may be hoped for; and certainty, light, and order be introduced into that region, hitherto the seat of obscurity, perplexity, and contradiction.

I would here, however, beg those who come to the discussion of the extremely intricate subject of nervous irritation, to remember, ere they enter on their labours, and while they prosecute them, **THAT ONE FACT, CAREFULLY NOTED, AND FAITHFULLY REPORTED, IS OF MORE VALUE THAN WHOLE VOLUMES OF THEORY AND HYPOTHESIS.**

It appears to me, that there are two false ideas abroad, adherence to which proves a most serious stumbling-block in the road of improvement. The one is the persuasion, or assumption, that in *all* cases having their origin in spinal irritation, the medulla spinalis will, on *post mortem* examination, exhibit such morbid appearances, as to account for the phenomena developed during life. This idea I have combated so much at large in the earlier part of this work, that I need scarcely allude further to it here. Wherever the medulla is the seat of the disease developed, as in epilepsy, tetanus, or chorea, I should expect to find some lesion of it; but where irrita-

tion of it or the nerves has occasioned structural disease elsewhere, I am inclined to think the morbid appearances in it will, for the most part, be invisible to our senses. There can be no doubt that closer attention to its structure, and the very beautiful discoveries now made in its minute anatomy, will lead us to recognise as morbid, many appearances, to which, hitherto, little importance has been attached.

Another false idea, or what my experience leads me to consider as such, is, that nervous irritation or debility never can, or does, exist in such a degree as to occasion the symptoms of organic disease, without obvious derangement in the column, or tenderness to touch over it, and in the neighbouring parts, being present. With the discoveries of Bell and Bellengeri alone before us, this assertion is quite untenable; but no less does experience contradict it.

In several of the most serious of the foregoing cases, these symptoms most decidedly were absent, yet the mode by which a cure was at last accomplished proved, beyond all dispute, that in the nervous system alone, and that as more immediately connected with the spine, the cause of the morbid phenomena had existed.

In one of the cases of chorea, No. 3, there was evidently total paralysis of the posterior strands of the cord from which the sentient nerves spring, accompanied by a high degree of irritability in a large portion of the motor nerves; yet not the most minute and repeated examinations of the spinal column could detect the slightest distortion or disarrangement; nor were symptoms, as far as I could ascertain, aggravated by pressure on that or the surrounding parts. In like manner, in Case 3 of diseased heart, there was no tenderness of any of the vertebræ, yet symptoms were much the same as in cases where both lateral curvature and tenderness were present. Tenderness to touch, indicative of inflammatory action, and curvature of the column, are, in fact, not *causes*, but *effects*, of nervous debility and irritation. Hence they may or may not be present, without at all altering the real character of the primary disease; but when they are present, by reacting upon it they must unquestionably increase prominent symptoms. Let the reader here take notice that in my opinion, caries of the vertebræ is a disease which ought never to be confused with, or mixed up in any discussion upon, mere spinal irritation; though curvature of the column be a symptom common to both, it does not follow that they are necessarily connected. I shall, however, take a future opportunity of entering more at large into this subject.

That many in the profession will be found to cavil at the opinions I have advanced, and the facts I have adduced, I make little doubt: but conscious as I am of the strength of my general position, and of the purity of the motives which have induced me to lay the present work before the public, I shall endure with great indifference the ephemeral remarks and opinions of such persons. *Magna est veritas, et prevalebit.*

NOTES.

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Note A, page 10.

The following is the case to which I allude. It appeared in Dr. Johnstone's Medico-Chirurgical Review for October, 1828.

“DISTRESSING CASE OF NEURALGIA.

[For Consultation.]

“The motives which lead us to publish the following most melancholy and terrible case will be readily appreciated. It is with the view (would that we could say *HOPE*) of eliciting some suggestion that may tend to mitigate the sufferings of an afflicted member of our own profession.

Mentem mortalia tangunt !

“The patient is a surgeon, retired from the East India Company's service, and in the fifty-ninth year of his age. About nine years ago, a pound of gunpowder (in a canister) exploded in his left hand, by which the bones of the thumb were fractured, and the soft parts about the palm of the hand much lacerated. The wound was dressed, and the case appeared to be doing well till the 10th day, when the sloughing process took place, which was followed by a profuse hæmorrhage, at first thought to be of venous blood. This was restrained by pressure ; but it repeatedly recurred, and proved to be arterial. Several attempts were made to secure the vessel by ligature, but all in vain. Two medical gentlemen (Dr. S. and Mr. C.) advised ligature of the radial artery. The vessel was taken up by the latter gentleman, but unfortunately the radial nerve was included, *and, when the ligature was drawn, the patient started up involuntarily from the recumbent to the perpendicular posture, and felt a most dreadful pain dart from the occiput to the forehead. This pain was of short duration, but ever since that time he has been subject to headache.* The hæmorrhage returned the same day, and Dr. S., in hopes of reaching a sound part of the palmar arch, removed the thumb, at its carpal junction. This operation also failed, and hæmorrhage again returned during the night. Being now much reduced, the patient himself determined on amputation, and the operation was accordingly performed the same night. But new misfortunes seemed destined for the unfortunate patient. While the surgeon was in the act of sawing the bones, the assistant let the soft parts fall into the teeth of the saw. ‘The pain,’ says the patient, ‘at this moment, was most exquisite ; that produced by the circular incision was pleasure compared with it. The sensation was as if melted metal were poured into the wound.’ One or two more strokes of the saw completed the operation, and the pain ceased. Before the wound healed, two sloughs came away in the direction of the blood-vessels, nearly three inches in length, after which cicatrization proceeded rapidly. *But great*

pain, referred to the lost hand, continued, and the patient felt as if the left hand were still attached, and in a high state of inflammation, with the fingers rigid and immoveable. There was also a sense of pain in the region of the cervical vertebræ, with distressing head-aches, especially when any acidity prevailed in the stomach. Nevertheless the appetite continued excellent. With the view of getting rid of these painful sensations, the patient visited Edinburgh, London, and Paris, where he consulted the most eminent of the faculty in each capital. The majority of these recommending a second amputation of the arm, as the most effectual means of relief, the operation was performed by Mr. Wardrop, between three and four years ago, in London. His evil fate pursued him from north to south! In about twelve hours after the operation, hæmorrhage took place, and Mr. W. was obliged to open the wound to search for the bleeding vessel. This opening of the stump gave him more pain than all the operations he had previously undergone! The stump, after this, healed very quickly (the amputation was performed five or six inches above the elbow); but, alas! the original sensation referred to the lost hand remains as intense as ever! Since the last operation, the patient has been gradually losing ground, and, with the exception of a good appetite, *he is suffering under all the usual symptoms of dyspepsia.* In addition to the pain referred to the absent hand, the patient is harassed with constant spasms in the biceps and other muscles of the arm and subsultus. *There is also a considerable tinnitus in the left ear.* He takes a good deal of exercise, but still his sufferings are on the increase. Every thing he eats is disposed to turn acid, and when acidity obtains in the stomach, all the above mentioned phenomena are greatly exasperated. 'I find there is a small hardened portion of substance on the face of the stump, connected with the muscles, very painful on pressure (the sensation always referred, even then, to the lost hand), and which appears to me to be a matting of nerves.'

"Previously to the last (second) amputation, Sir Astley Cooper advised merely the removal of the extremities of the nerves on the face of the stump. Mr. Abernethy was averse to any operation, and recommended blue pill. We have ourselves consulted several eminent surgeons and physicians, but their opinions have been very various. Sir Henry Hallford is of opinion that the extremities of the nerves on the face of the stump are in a state of disease, and are the cause of the patient's sufferings. He recommends another amputation, which he has known to succeed in two instances. We forbear to state any opinion on the subject at present; but solicit the opinions of others. The patient is employing every means of improving the general health, and especially the state of the digestive organs.

"It will be acknowledged that there is hardly to be found on record a more melancholy, unfortunate, or distressing case, than that which is here sketched out. As occurring in the person of one of our own profession, it is doubly interesting, and calculated to call forth our sympathy. Any suggestion communicated to the Editor of this Journal, will be conveyed to the afflicted patient."

Had the valuable discoveries of Sir C. Bell and Signor Belengeri been before the world when this case occurred, I am inclined to think it would have been differently treated, by the eminent members of our profession to whom it was latterly submitted. I have marked by Italics, symptoms which, in my humble opinion, most decidedly indicate that the morbid

influence productive of so much suffering was lodged, not at the extremities of the cut or lacerated nerves, but at their roots or spinal and ganglionic junctions.

Most melancholy to say, this miserable case is still going on; and, if I am not misinformed, further amputations have been submitted to since the case was published in 1828!

That it is now, after sixteen years' endurance, far past cure, is more than probable; but if the unfortunate sufferer will even now submit to the insertion of a seaton over the upper cervical vertebræ; a caustic issue over the whole of them, or the repeated application of moxa, as near as possible to the origin or principal junctions of the brachial nerves, and daily frictions over the whole back and thorax, with an anodyne or stimulating liniment,—I do not presume to say that his case will be *cured*; but my experience is much at fault, if he does not find *perseverance in this plan of treatment very materially alleviate its most distressing features*.

I am inclined to anticipate, that *on careful examination* the whole dorsal spine will, in this case, be found tender to touch, and pressure there increase painful symptoms.

It will naturally be asked, why I did not make these suggestions known at the time the case was published for consultation. I answer, that 'Dr. S——' *is well aware of my reasons for non-interference*, and there is no occasion for my making them more public.

Note A 2, page 26.

It is deeply to be regretted that the nice discrimination, the critical acumen, and the warineth of feeling which has been expended in combating the rival claims of the two great anatomists of the Nervous System, Bell and Bellengeri, to priority of discovery, have not rather been bestowed in prosecuting the practical results of what they have discovered.

I cannot sympathize in, or approve of, the indecorous zeal with which some have stepped forward to pluck the laurel from a fellow-countryman's brow, and plant the brand of piracy instead.

I know nothing of Sir Charles Bell, further than that his character as a gentleman is unimpeachable, and he has done much for the benefit and improvement of our science; circumstances which ought to shield him from such attacks.

It is surely no very extraordinary or unnatural occurrence, that two men of great talent, their whole lifetime engaged in prosecuting the same studies, should simultaneously make the same discovery, and promulgate it to the world. At all events, it is to me much more easy to believe this, than to suppose that a man of Sir Charles Bell's acuteness and good sense would choose the Royal Society as the medium of communicating his discovery to the public, had he been aware that, three years before, another person had laid the same before that learned body.

It detracts in no degree from the merit of any one who makes a new discovery or observation, that another, unknown to him, makes it simultaneously. Nor does it thus become in any degree less the property of each. And such a discovery as the one we speak of, may well furnish laurel sufficient to encircle two brows.

Note B, page 27.

"Since we have touched upon this subject, I may here state what is

known of the *sympathetic nerves*. When I began study, it was usual to demonstrate this nerve as a nerve of the brain, descending more directly from the sixth and second division of the fifth nerve—to trace through the carotid foramen, down the neck with the *nervus vagus*, and so on to its division to the heart, and then as *intercostal* to the viscera. This term, *intercostal*, sufficiently marked its connexions; it was so called from the frequency of its connexions with the intercostal nerves, viz., the *spinal nerves*, which take their course between the ribs.

“It being acknowledged that nerves were the only bonds by which the sympathies of distant parts were to be accounted for; and physicians observing the connexions between the different parts, the emotion expressed in the face, the affection of the organs of sense, that blushing proceeds from the influence of passion on the body, and even such connexions as sneezing from tickling the nose; all these were accounted for by sympathy through this nerve; and hence, for distinction’s sake, it was called the Sympathetic Nerve. The experiments detailed in this volume will clear away that mass of error in which physiologists were involved. But I am now the more bound to acknowledge our obligations to Bichat, having shown how far, in some respects, he was incorrect. To him we owe the important fact, that there is no sensibility in the branches of the sympathetic nerve, nor in the ganglions formed in its progress. Those parts may be cut and pinched in the living body without producing pain; and they move no muscular apparatus, as far as we at present perceive.

“The functions of this system are known only by negatives: we have ascertained that they have nothing to do with volition, nor with sensation, nor with respiration, nor with expression, nor with sound and speech.

“We are left therefore to the conjecture, that the sympathetic nerve, on the ganglionic system of nerves, according to Bichat, are for those thousand secret operations of a living body which may be called constitutional. Circulation, secretion, and absorption, are operations which simultaneously affect the entire frame. Constitutional peculiarities, fever, and general derangement of health, must, we conceive, belong to this system of nerves. And we call it system, for it is curious to observe that, by the progress of anatomy, this lesson has become easy. Painfully, and with a stretch of memory, we were formerly endeavouring to recollect the relations and connexions of the sympathetic nerve, but now we know that it is extended universally; that its relation to the nerves of the head are not more remarkable (when looked upon free from hypothesis) than its branches to the nerves of the extremities; and that it extends to all the internal viscera. It is universally distributed to all parts of the body, and in this is its peculiarity.

“As to the origin of the sympathetic nerve, we cannot assign it a commencement. It has a twig from each nerve of the spinal marrow; but these are very small nerves, compared with the mass of nervous matter seen in the centre of the viscera of the abdomen.

“The semilunar ganglion, and solar plexus, being parts of this system, and the branches of nerves extending and diminishing from this region, give countenance to the idea that we have here the centre of the sympathetic system.

“This conjecture is countenanced by the fact, that these viscera of the

abdomen perform the most independent of the will, and over which the mind has no control. No part of the human body is altogether independent. When, by circuitous influence, the mind does operate on the vital functions, we know what disturbance is produced, which is enough to show with what beneficial effects the relations are made remote."—*Sir Charles Bell's "Nervous System of the Human Body."*

Note to page 31.

It is greatly to be lamented that the female sex are not more fully aware of the baneful effects which are produced by any deformity or disarrangement in the lower portion of the spinal column, when placed in the most interesting situation a women can occupy—that of becoming a mother.

If women knew, or could be convinced, that such disarrangements are productive of extreme danger to the life of both mother and infant, and that too, too often the one is of necessity sacrificed to save the other; and also, that the inevitable sufferings endured at such times, are increased tenfold by any twist in the column; surely such solemn considerations would induce them to avoid those practices, in the education of their daughters, on which I have animadverted, *with not a tithe of the severity they merit.*

Would to God it were possible to convince mothers and governesses, that to over task the mind of a growing child, to keep it for hours sitting in the same erect attitude, and to check its natural desire of romping exercise, is to ensure the production of spinal disease and deformity, and the ruin of the constitution; and that far, far less dangerous will it be found to the health and development of a growing creature, to stint it *of its food than of its sleep!* Yet how mercilessly, how unthinkingly, is this done! How inhumanly are poor infants, and young girls at the most critical time of life, every morning shaken and shoved about, and *scolded*, to arouse them from that profound repose by which exhausted nature is seeking to repair the injury done by the previous day's over exertion!

It never can be too deeply impressed upon the minds of those who have the guardianship of the young, that all growing animals require a much larger proportion of sleep than they do when the adult state is attained. In a state of nature, such animals divide their time entirely between violent exercise and profound repose. Any one may learn this lesson from the kitten on their carpet, or the lamb on their lawn. The more pity it is, that in the present day we take so few lessons from *SIMPLE NATURE.*

Note C, page 62.

In making *post mortem* examinations in our military hospitals in France, we were often astonished to find traces of extensive lesion, as cicatrices, adhesions, and concretions, in the lungs of men who had not, during life, or while under treatment in hospital, complained of their respiratory organs. Adhesion of the pericardium to the heart was likewise very frequently met with.

When we consider to what extreme fatigue and privation, as well as mental excitement, these men had been for a length of time subjected, we cannot wonder that such results should have taken place; but how are

we to account for the absence of all complaint or apparent suffering during life? Dysentery prevailed considerably in our camp at that time, and of these subjects died of the chronic form of that malady.

Note D, page 77.

This case excited a great deal of notice in Port Glasgow and the neighbourhood at the time it occurred, not only from its extraordinary nature, but from its being made the subject of a *would-be miracle*, by one of a sect more remarkable for good intentions than good sense. The fair scion of a ducal house, who had become deeply imbued with the wild idea that she was gifted with miraculous powers, waited upon my suffering patient, with the benevolent intention of casting out a devil, with which she pronounced the poor girl was possessed. The devil, on being ordered to quit his residence, proved refractory; far be it from me to hint but that he would at length have yielded to repeated exhortations, had the progress of the 'miracle' not been interrupted by the arrival of a liveried footman, to announce that '*the steam-boat was just at hand.*' On which most *unmiraculous* summons, the lovely enthusiast hastened away, assuring the wondering family that she would 'return in a few days *and finish the miracle.*' I was however *hardened* enough to forbid her all access to the apartment of my patient.

The next time this fair lady goes a casting out of devils, I advise her to put half a pound of hog's lard and an ounce of tartrate of antimony in her pocket. She will find these articles form a better *exorcism* than any she has hitherto used. And if she is sceptical on this point, she had better use a portion of them upon any part of her own beautiful person; there is reason to think it would have an excellent effect, in clearing her mind from some of the hallucinations with which it has been troubled.

Note E, page 93.

I have twice, in making a post mortem examination of epileptic subjects, found lanciform spiculæ of bone thus growing from the orbital plates, and pressing horizontally upon the brain.

In one of these cases, the patient was a young lady; the attacks occurred at considerable intervals, and the existence of the disease was a profound secret to all but her mother and the medical attendant. In one fit, not at all more than usually violent, but occurring just on awaking from very profound sleep, she suddenly expired.

How are we to account for the long intervals in attacks, the *apparent* cause of which is invariable and immovable?

The most extraordinary instance I ever met with of an ossific formation in the brain, was in that of a dwarfish idiot, 34 years of age, whose miserably deformed body I examined merely as a matter of curiosity. The head was of most unusual size, and the volume of the brain much greater than in ordinary subjects.

Lying quite detached, in the substance of the cerebrum, just above the sella turcica, I found what closely resembled in size, colour, and even *beauty*, an ordinary pearl. There was no sac, no cell, nor could I detect the slightest attachment to the surrounding texture, neither was there any discoloration of the parts around.

I regret to say that this strange substance was, along with many similar curiosities, stolen from me a few years since.

I could not learn that this creature had, during any period of life, been liable to fits or convulsions of any kind. It was an idiot of the most inoffensive but deplorable sort, quite deprived of language, and even of the power of uttering any articulate sounds, and the whole senses apparently extremely obtuse, if not altogether absent, if we except a strong feeling of *modesty*, and an obvious delight at the sight of infancy; a bunch of rags, however, twisted into the shape of a doll or baby, was quite as acceptable as a living infant, evidently producing, when placed upon her lap or in her arms, sensations of most intense enjoyment. It measured about three feet in height. The skeleton would have been a rare curiosity, but this I could not procure.

APPENDIX.

THE following Cases, kindly furnished by my friends, and which bear so strongly upon the subject of this volume, reached me too late for insertion in the body of the work,

“ 6, *Russell-street*, 2d *September*, 1835.

“ Dear Sir :—In compliance with your request, I hand you the following abstract of a case of spontaneous *Tetanus opisthotonicus* complicated with *Cynanche trachealis*, in the adult. In committing it to your disposal, I would observe, that I merely detail facts, without implicating myself at present in the support of any theory of morbid sequences, or of any therapeutical principles. With the sincerest wish that science and humanity may derive advantage from your forthcoming lucubrations,

“ I am, dear Sir, yours truly,

“ To Dr. Marshall. JOSEPH PEEL CATLOW.”

“ I was called at eight A. M., on the 14th Nov., 1824, to *William Drake*, stuff-weaver, of Thornton, near Bradford, in Yorkshire, æt. 19, of phlegmatic habit, on account of violent and constant pain in the loins, with almost incessantly repeated exacerbations. He was heard to complain on the 13th, of pain in his back, after perspiring profusely, from running at a hunt ; though he said himself, at a subsequent visit, that he did not notice it until the morning of the 14th. He was said to have hurt himself with leaping over a wall, and to have afterwards run very little.

“ My observations were as follows : a slight flush in the cheeks, which is habitual ; the pulse quick and small ; each inspiration interrupted by pain in the loins, and when purposely prolonged, also at the scrobiculus cordis ; much tenderness midway between the ensiform cartilage and the umbilicus ; a little to the right and left of this point, and also in the right renal region, the muscular parietes of the abdomen rigid. It was not until five P. M., that I discovered the paroxysms of pain to be completely opisthotonic ; the back being then, at each accession, involuntarily raised and arched. The pulse was strong and hard during the paroxysms.

“ Inquiring as to the patient's *previous health*, it was repeatedly said to have been perfect in every respect, but in the midst of these confident assertions, I learnt that his bowels were habitually constipated, and that he had a very difficult motion on the 13th. I also learnt that he was habitually much troubled with phlegm in the throat. At a subsequent visit I was informed, by the same at-

tendants, that he had complained of great difficulty in breathing for some weeks ; and that he was so ill on the 12th, as to think of applying to me for relief. Again, at a still subsequent visit, when the relaxation of the pain allowed him to attend to my inquiries without inconvenience, he informed me himself, that he had had, for *many months* ‘ a shortness of breath, especially on using any exertion ; frequent pain at the pit of the stomach, with tenderness and interruption of inspiration, and distention and hardness of the abdomen, with heartburn in the evening.’ With regard to his bowels, he *said*, ‘ that he had generally had a tolerably copious yellow evacuation, of a natural consistence, every morning after breakfast, requiring a moderate time for its accomplishment ;’ he again said, however, that he had occasionally been very relaxed, and had suddenly passed scybala. His inclination to pass urine had been very frequent. His appetite had latterly been unusually great.

“Up to one A. M., on the 16th, the patient was treated with repeated doses of calomel, opium, and ipecacuanha, infusion of senna and salts, a warm bath continued for an hour, mercurial inunction, V. S. at three intervals, to the *estimated* extent of ℥iij. and ℥iv., of which the latter portion was abstracted while the patient was in the bath. Enemas were also exhibited, and at one time the tartarized antimony and digitalis were combined with his medicines.

“The effects of the V. S. were faintness, the breathing rendered more free, the abdominal tenderness removed, the pain temporarily relieved. The blood did not show the buffy coat. The relief was great, and continued after he was removed from the bath. During its use he was occasionally delirious, talking about the chase ; but at other times uttering prayers and exhortations to those around him, much elevated above the anticipations of his friends. The pulse was rendered quicker and fuller by the bath ; but it was soon reduced again by the small quantity of blood then abstracted. It is again reported, at three P. M. on the 15th, to be quick and bounding ; the tongue being moist and a little furred ; a coppery taste being perceived, but the gums not being tender or swollen. Vomiting and alvine dejections procured temporary relief. Some of the latter were very scybalous.

“At nine P. M., on the 15th, the patient is reported to have no pain ; to be constantly inclined to sleep, and to have slept well during the day. The fatal prognosis which I had given was now supposed, by the friends, not likely to prove correct ; but, about eleven P. M., he began to complain of “a lump” in his throat, which, on different examinations, he referred to the top of the thyroid cartilage, to the space between the thyroid and the cricoid cartilages, and to an indefinite space between the latter and the sternum. He complained that it impeded his breathing. He could swallow liquids, but not solids, easily. Some mucus, and very slight redness, were observed in the posterior fauces. There was a frequent spitting or other issue from the mouth of frothy saliva ; but the gums were not tender or spongy. His voice was rather hoarse.

My attention was now more particularly directed to the great motion and dilatation of the *alk nasi*, which I recognized as having existed from the time of my first visit. A certain gulping, or interrupted deglutition, which had seemed to be consentaneous with the paroxysms of pain in the back, was now present, though this pain had temporarily ceased. The pulse was very quick, rather hard and full. The pain of the back began again to increase, its first re-appearance or aggravation being imputed to vomiting.

"The means now used were, V. S. to the extent of $\frac{1}{2}$ iss. by *estimate*, an emetic of tartrate of antimony, a large blister to the chest, 12 leeches to the neck, boluses of calomel, opium, and ipecacuanha, mercurial inunction, and enemas.

"About noon on the 16th retching occurred, and, with the assistance of warm water, the patient vomited more than an ounce avoirdupois of very thick false membrane; one large piece forming a flattened tube, the parietes of which were irregularly cellular, of a whitish-grey color; another piece yellowish and not tubular. The pulse was calmer, the pain of the back ceased, and the patient slept. And now, the cause of the whole disease seeming to the friends to be removed, they desisted from the further use of the means enumerated. Towards five p. m., however, the pain of the back seemed again to increase; the use of the medicines ordered was resumed, but they were soon discontinued, on account of the patient desiring to sleep. He *died* very calmly at two a. m. on the 17th.

"SECTIO CADAVERIS, 32 hours after death.

"*Spine*—On opening the vertebral canal, from the top of the sacrum nearly to the highest dorsal vertebra, the outer surface of the *theca* was found streaked with very minute red lines, which became more numerous and larger as the examination proceeded upwards. On the lower part of the *theca* being prematurely opened by accident, a large quantity of reddish watery fluid escaped, and inundated the surrounding parts. The pia mater was considerably injected with florid blood, and this appearance increased progressively upwards. The central vein was remarkably conspicuous, with its numerous lateral ramifications. As far as could be seen without further chiselling the bone, this injection was continued along the nerves, detached through the vertebral foramina. Somewhat above the centre of the dorsal portion of the spine, was readily observed a small tumor on the left side of the medullary substance, much softer than the rest, and surrounded by the greatest degree of injection.

"*Trachea, &c.*—Above and below the bifurcation of the *trachea*, conjointly for a space of two or three inches, and chiefly occupying the posterior part of the canal, was observed a linear redness, which sponging did not efface, and which suggested the idea of the skin, when it has partially recovered the recently abraded cuticle, clearly indicating the site of the false membrane. The mucous coat appeared softer than is usual. A little injection was observed under

the mucous membrane, covering the cricoid cartilage ; and the membrane itself seemed of a coarser texture than is usual.

“*Abdomen.*—The liver was rather large ; the gall-bladder was very full of bile ; the colon was very large, particularly the left portion of the transverse arch, which was in contact, as the body was recumbent, with the highest posterior part of the diaphragm. The beginning of the *duodenum* was very large, and injected on its posterior outer surface. Two considerable portions of the *ileum* were much more contracted than the *jejunum* ; and the glands opposite them were enlarged and injected. The mesenteric and mesocolic glands in general were much enlarged, and many of them injected : some of them were livid, and injected through their whole substance. The mesentery itself was considerably injected for the space of a hand’s-breadth, opposite a part of the *duodenum*. In that part of the *duodenum* which was tinged with bile, the mucous coat was soft and easily abraded, and the muscular coat was very vascular. It was the only part of the intestine opened.

“P. S. Dr. Marshall is further informed, that at the Charlton-upon-Medlock Cholera Hospital, in the autumn of 1832, the vertebral canal was opened by Mr. Begley, the house-surgeon, and the informant, only in three cases of death from malignant cholera. These had ended in a low secondary fever after the stage of collapse ; from which, indeed, one of the cases could hardly be said to have recovered. In two of these cases there were serious effusion in the theca vertebralis, and injection of the pia mater, very similar to that reported in Wm. Drake’s case, particularly in the dorsal and lumbar regions. In the third case the injection was the same, but there was no apparent effusion. In this, however, there was a larger quantity of effused serum in the lateral ventricles of the brain, than in the others, which is noted as reddening litmus paper. In one of the three cases, a considerable effusion of dark blood is also noted on the external surface of the theca vertebralis, with external injection. How far the former appearance might depend on the chiselling of the bone, I leave to be conjectured ; it was not, however, observed in the other cases. Two of the patients were about nine or ten years of age ; the other about twenty-five.”

CASE OF SPINAL IRRITATION CAUSED BY A STROKE OF ELECTRIC FLUID.

In January of the present year, on my way through Buxton to visit a patient in Staffordshire, happening to converse with Mr. Buxton, of that place, upon the peculiar views which I entertained as to the influence of the nervous system in producing organic disease, that gentleman mentioned that there had been for upwards

of two years a case under his immediate charge, which he thought would prove highly interesting to me, and kindly proposed that we should immediately visit the patient. As we proceeded to her house, Mr. Buxton gave me a detail of her sufferings, which I need not repeat here, as it will follow in his own words.

I found her in bed, to which she has now been nearly three years confined. Her countenance placid and beautiful, by no means giving any impression of either disease or suffering. Mr. Buxton had never examined the spine; and it was with very considerable difficulty we raised her so far into a sitting posture as enabled me to do so; the utmost gentleness and caution were requisite, to prevent the agitation bringing on a cataleptic attack.

The cervical and dorsal spine were found exquisitely painful on touch; about the middle of the dorsal, there was a space where the spinous processes of two of the vertebræ could not be traced; and there was a puffy feel at this place, touch causing the most excruciating torture, accompanied by an indescribable thrilling pain over the whole body *below the point touched*. The lumbar vertebræ were not displaced, but pressure upon them produced such an aggravation of suffering as caused the patient to fall into a state of total insensibility; for a few minutes there was rapid winking of the eye-lids, with a simultaneous rolling of the eye-balls, and obscure twitching in the lower extremities: these movements soon ceased, and she lay extended, the image of death; the body completely rigid, and considerably opisthotonic. In this state, I was afterwards informed, she lay for several hours. I have visited her repeatedly since this period, and have on almost every occasion witnessed similar attacks, consequent upon the use of the catheter, or any other cause for moving her body; but I shall not longer detain the reader from Mr. Buxton's interesting account of this mournful case—mournful indeed, when the youth, the beauty, and the dependent situation of the sufferer, are taken into consideration.

“Buxton, Sept. 6th, 1835.

“My Dear Sir:—I regret that professional and other engagements have hitherto put it out of my power to comply with your request for a detail of Elizabeth Oldfield's case; and even now I fear you will find the following notes but unsatisfactory. They are, however, the best I can at present offer.

“She continues much as you saw her, and to-morrow I intend to apply the caustic potash to the spine, in the manner you recommended.

“I am, my dear Sir, yours truly,

“Dr. Marshall, Manchester.

THOMAS BUXTON.”

“On the 5th of October, 1832, the Peak of Derby was visited by

one of the most tremendous thunder storms ever experienced in England, and at Buxton it was particularly severe.

"About five o'clock of the day, when the storm was at its height, Elizabeth Oldfield, the subject of the present case, then a fine, healthy girl, sixteen years of age, was passing from one room to another of her father's house, when she was struck on the forehead by the electric fluid; the flash was of the most vivid brilliancy, and accompanied by an appalling clap of thunder; this last seemed, to use her own phraseology, 'to strike her through the left breast, and work round her whole inside.'

"By the testimony of those who were present, she was at the moment raised from the ground, and thrown forward at least two yards, and would have fallen forcibly against the door of the room, had she not been caught hold of, and carried into another apartment. Here she was placed upon a chair, and supported for some minutes, when she recovered from the state of insensibility into which the shock had thrown her; but on attempting to walk, it was found that she had entirely lost the use of her lower extremities, more particularly the left. On a second attempt to walk, she shrieked out of pain in her head and 'inside,' and presently fell into a cataleptic fit, in which she remained till the following morning about nine o'clock, when she came out of it in the most fearfully agonizing manner; remained sensible for an hour, and then fell into a similar fit, which held her for three weeks, during all which time she never was one moment sensible; though every medical means were tried to relieve her, such as bleeding, blistering, leeching, enemata, &c., &c.

"When at length she awoke from this long trance, it was with fever, pain of head, and general sense of severe suffering. In a very few days there was a recurrence of a similar fit, in which she lay for thirty-two hours, during all which time she was as still and motionless as any corpse; the eyes were open, fixed, turned upwards, and the pupils greatly dilated. This has always been the direction of the eyes during the fits, except once, when they were as if looking straight forward into the face of the observer, with a glare that was indescribably horrible.

"For about three weeks after this, the fits were much shorter and more frequent. Sometimes as many as seven in a day; but they suddenly changed to two in the day, occurring regularly forenoon and evening, to a minute, at the same hour. They were ushered in by great pain, and a feeling as if her heart were falling out of its place; then presently sinking into the cataleptic state, she remained therein for two hours and a half, and then began to struggle and make the most violent convulsive exertions. When these had gone on for two hours, the poor sufferer, with the most heart-rending cries and groans, regained her consciousness—again to act over the same dismal scene in a few hours after; and thus nine hours each day were spent.

"During the fits, the fingers and thumbs were firmly clenched in

the palm of the hand, and the toes drawn down till they were pressed nearly flat upon the soles of the feet. When coming out of the fits, the fingers relaxed *one by one, invariably commencing at the little finger*, and proceeding regularly till the whole four had recovered their pliancy, when the hand turned over, and the thumb next lost its rigidity, and successively the other hand and the feet underwent the same process. The long fits continued to recur till the 11th of April, when they began to abate.

“Shortly after this, she complained so much of severe pain in the left hip, as to cause an examination of the parts to be made, when a complete dislocation of the hip joint was discovered. This must have taken place about the time the fits abated, for I had observed, a short time previous to that, that both limbs were quite perfect, moveable in every direction, and the same length. About this time she was also seized with suppression of urine, which rendered the daily use of the catheter necessary for about two months. Nevertheless, she convalesced in some degree, so as to be able to sit up, move about a little on crutches, and go out in a bath chair.

“Exactly at the expiration of a year from the time she was struck by the electric fluid, she was again seized with diurnal fits, similar in character to those I have described, but with the additional symptom of locked jaw, continuing the whole while of their duration, which was generally five hours.

“During the winter she continued very poorly indeed, notwithstanding the constant use of every remedy my skill could suggest. Neither the natural baths here, nor the hot baths, ever were of the smallest benefit to her. In the course of the summer she obtained some little remission of her extraordinary sufferings, but on the return of October, almost to the very day, she was again attacked with the fits, and such violent pain in the back, left shoulder, and arm, as to cause serious apprehensions that dislocation was about to take place there, as it had done in the hip.

“The fits continued very severe for three weeks, recurring twice a day, differing from the former ones only in this, that the eyes were closed, and the lids affected with constant twitching. The winter was passed in a very miserable state of suffering.

“She is now in a most melancholy state, constantly confined to bed, and even almost to one posture; every attempt to turn or move her in bed, or the use of the catheter, producing a cataleptic attack. There has been for the last two months, to a certain degree, incontinence of urine, but I still deem it advisable to use the catheter twice or thrice a week.

“One remarkable peculiarity of her case is, that when the atmosphere is charged with electricity, as before a thunder storm or heavy rain, her sufferings, particularly palpitation of the heart, with which she has all along been severely annoyed, are greatly aggravated; and the occurrence of thunder invariably throws her into a violent cataleptic fit.

“She has been seen by a number of medical men. Dr. Willis

saw her during a visit to Buxton, and prescribed for her an emetic and musk draught, both of which I considered highly beneficial, particularly the latter; it was administered at a time when, from Monday forenoon till Saturday evening, her jaws had continued locked, and soon after taking it they gradually relaxed. She herself imagines that it rendered the fits less severe.

“Her mental faculties are perfectly sound, and never have been otherwise; but all is a blank from the time the fit comes on till it goes off. Her temper is remarkably mild and amiable.”

In what state the spinal marrow would be found in such a case as the above, is a question no less curious than it would be useful, could we obtain a satisfactory answer to it.

I am not aware that there is on record any minute or scientific dissection of a body killed by lightning; but to obtain such has always appeared to me most highly desirable, as it might tend to throw great light upon several difficult points.

The rarity of such occurrences in Scotland never afforded me any opportunity of satisfying my curiosity.

The only animals ever killed by lightning in my neighbourhood were two oxen, and on hearing of the occurrence, I lost no time in applying for permission to examine the carcasses. The curiosity of the owner and his neighbours had, however, been equal to my own, for the *dissection* was over, and the carcasses disposed of, before my arrival.

I conversed upon the appearances found in them, with a very shrewd intelligent man who had been present, and who told me, in his own mode of expressing such matters, that the carcasses were greatly swollen, and the blood round the heart and in the lungs was very fluid and violet-coloured, but towards the extremities and in the flanks this was interspersed with patches of rose colour. The bowels were darker coloured than natural, but what was most remarkable, on cleaving the back bone, *the whole spinal marrow ran out no thicker than cream*. This was the whole amount of my informant's observations; but even this throws no inconsiderable light on Elizabeth Oldfield's case. I feel little or no doubt that ramollissement of the spinal cord is the cause and origin of all her prolonged and extraordinary suffering, and perhaps the same exists in such cases as the *first* in Dr. Griffin's volume, in No. 3 of the non-classified cases in this volume, and also in a case from my friend Mr. Torbet, of Paisley, which I understand is to appear in the Edinburgh Medical Journal for October next.

The following case is only curious as having occurred in a situation where no medical assistance could be obtained, and was conducted by a person who had merely seen me treat one somewhat similar, and who, hearing of my intended publication, sent me the following detail:—

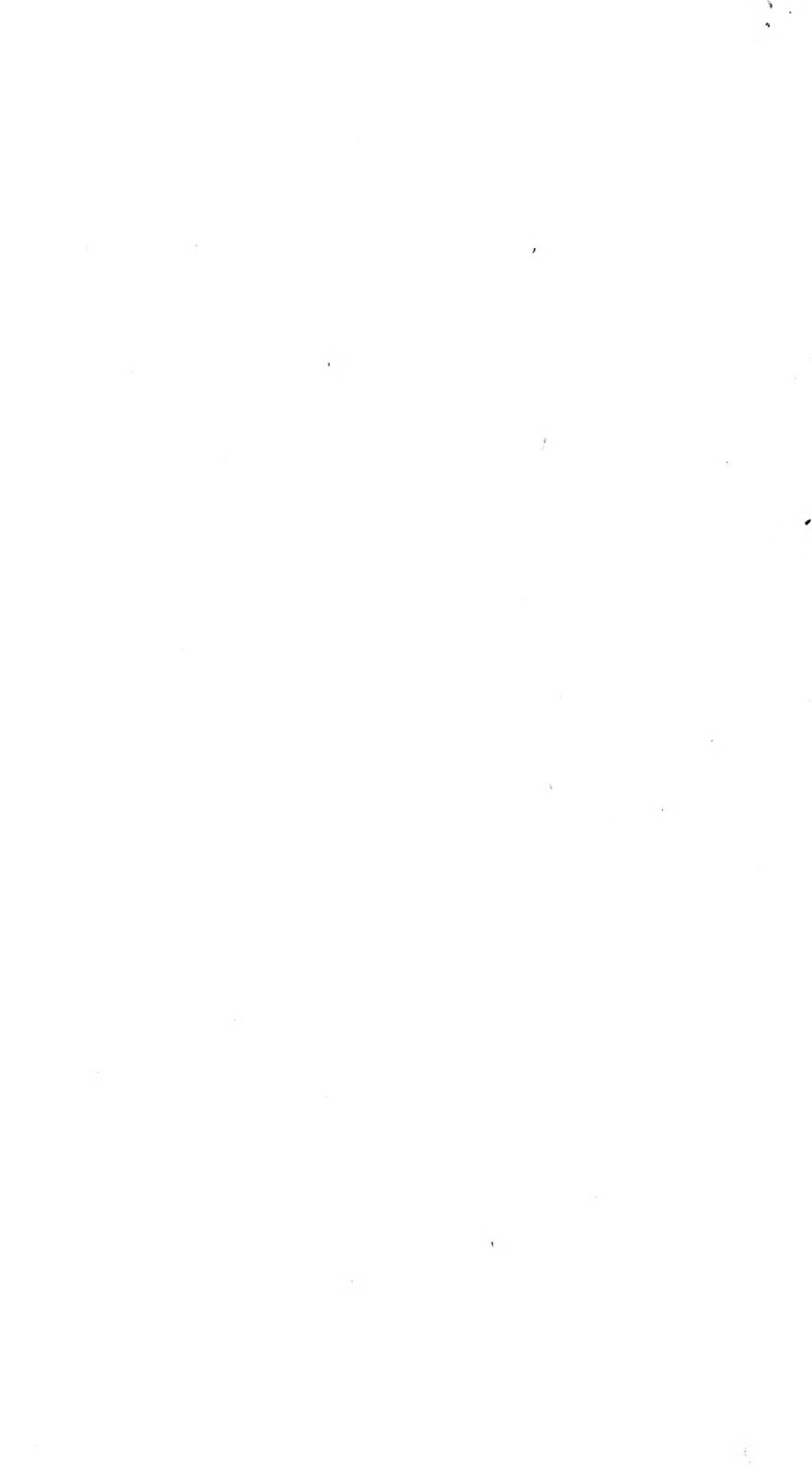
"*John Lorn*, a stout plough-boy, 16 years of age, having walked to a considerable distance to attend the funeral of his father, was during his journey home seized with such intense pain in his back as rendered him quite unable to proceed. He was found in this situation by a person who had the humanity to assist him to his own house, and send for a doctor. This gentleman ordered leeches to the pained part of the back, which gave much relief, and he was sent home to his master's house in a cart.

"A few days afterwards, I was informed of his wretched state of suffering, and went to see him. I found him in bed, from whence he was wholly unable to rise, or even alter his position in it, from the intense agony in his back. The spine was incurved from the nape of the neck to the bottom in a most extraordinary manner, and painful throughout its whole length. At two places, the vertebræ were so sunk as not to be felt at all, and at these parts the tenderness to touch was exquisite. The skin was hot and dry ; the appetite quite gone; the countenance expressed extreme suffering.

"I requested a blister an inch broad, and eight long, might be put upon the back, close to the bone and the most painful part; and when it was healed, a similar one was put on the other side, a little further up; and thus they were alternated for two months. When the fever subsided, I sent him porter for drink, as his strength was much reduced.

"It was above six weeks before he could sit up or move about, but after that period he recovered rapidly, and is now a tall, stout young man."

THE END.



NEW RESEARCHES
ON
ACUTE ARTICULAR RHEUMATISM
IN GENERAL;

AND ESPECIALLY

ON THE LAW OF COINCIDENCE OF PERICARDITIS AND
ENDOCARDITIS WITH THIS DISEASE,

AS WELL AS ON

THE EFFICACY OF THE METHOD OF TREATING IT BY REPEATED BLOOD-
LETTINGS AT SHORT INTERVALS.

BY J. BOUILLAUD,

PROFESSOR OF CLINICAL MEDICINE IN THE FACULTY OF MEDICINE AT PARIS.

His observatis, nemo rationis capax jure in his morbis vituperare
missionem sanguinis potest, sed mirifice et tanquam divinum auxilium
commendare, extollere, et confidenter usurpare.

BOTAL, *De Curatione per Venæsectionem.*

TRANSLATED BY
JAMES KITCHEN, M.D.

PHILADELPHIA :
HASWELL, BARRINGTON, AND HASWELL.

1837.

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Entered according to the Act of Congress, in the year 1837, by
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the Eastern District of Pennsylvania.

P R E F A C E.

UNTIL recently, the history of rheumatism in general, and of acute articular rheumatism in particular, has been nearly stationary. What do I say? under certain points of view our knowledge of this disease had really retrograded. We may, it is true, in the writings of Sydenham and in Stoll find some positive ideas on the causes, nature, and treatment of articular rheumatism; which certain *modern classical* physicians have entirely misunderstood. Who would believe, for example, that it were possible for any one in our times to carry false observation so far as to proclaim, that alternations of heat and cold have but little to do in the production of acute articular rheumatism; that this affection should not be classed with the great family of phlegmasiæ; that it is of the number of diseases on which pathological anatomy has taught us nothing certain? &c.

I trust that the Researches to which the attention of the medical public is now invited, will do ample justice to these singular heresies, and will bring back into the path of correct observation, a crowd of young men whom the influence of bad teaching had misled. After all, the principal object of this little work is not so much to refute errors, thus generally propagated on various points in the study of acute articular rheumatism, as to make known to our brethren what recent researches have further taught us on the coincidence of this disease with inflammation of the internal and external sero-fibrous tissues of the heart, and on the efficacy of abstractions of blood, practised according to a method peculiar to the author.

It is, I will venture to say, a discovery worthy of some attention; to wit, the almost constant coincidence, either of endocarditis, or of pericarditis, or endo-pericarditis, with violent acute articular rheumatism. This fact, which daily observations more and more confirm, is of such vast importance that it constitutes, in some measure, a true revolution in the history of acute articular rheumatism. I am not at all astonished that so many are opposed to it: that is the fate of all new truths of any importance. But what I am not afraid to predict is, that but a short time hence it will scarcely be conceived how so evident a fact could have been concealed from the scrutiny of physicians who preceded us in their observations. Among many persons who for three years have followed our clinic and verified the fact, I will mention MM. Capuron, Pelletan, and Douné, clinical chiefs; Lecouteulx, clinical aid; Desclaux, Raciborski, Tournier, Péturet, Denise, Lalanne, Bressan, Nauthonnier, Clémenceau, Chevé, Fournet, one of the most distinguished *internes* of the hospitals; Coquet-Dusablon, Faure, Chapel, Jallat, Michel, &c. In fine, there is not a hospital in which the new discovery may not be verified every day, by those who have any tact in the valuable methods of percussion and auscultation.

Neither was it an unimportant matter to learn how to cure in one, two, or three weeks, a disease which was the despair of those modern practitioners, whose name was authority, whose practice was law. And it was so much the more important promptly to put an end to this disease, reputed hitherto so formidable, as, in its prolongation it caused, among a majority of those affected, incurable organic lesions of the heart, sad and melancholy relics of that endocarditis and pericarditis which had been hitherto mis-

understood. Now (and this remark is worth remembering), we know how to soothe this untractable acute articular rheumatism, precisely by the method of abstractions of blood which, according to some of our celebrated clinical professors, especially MM. Chomel and Louis, could be of little or no avail against the long duration of such a malady. True it is, that to obtain from this method the success which we announce (without fear of being contradicted by those who have witnessed our practice) we have been obliged to have recourse to it differently from what has yet been done. It has been in applying to the treatment of acute articular rheumatism the method of copious abstractions of blood at short intervals, which we have made use of so successfully in the treatment of all the violent phlegmasiæ in general, that we have at length triumphed, without a very great resistance, over an affection which had, as it were, set at naught the plan of abstractions of blood commonly used.

Vainly is this method contested by those who have never practiced it. The time will soon come when they will not dare to gainsay it. It is not indeed in our day only that copious abstractions of blood have been objected to. Overcome by the prejudices of his age, Sydenham had sometimes to renounce venesection to the extent which he thought necessary.*

Botal, who in his days was the most ardent lover of blood-letting, could not always be pleased with the reception he met with from his cotemporaries. In revenge he sometimes treated them harshly enough; for example, in his work *De Curatione per Venæsectionem*, ch. vii., he says:—"At in tantâ timiditate et parâ detractio sanguinis, qui fieri potest, ut quis rectè possit judicare quantum ex in pestilenti morbo prodesse valeat, aut obesse? Non enim morbus pro ejus curatione requirebatur detractio librarum quatuor sanguinis, in quo una tantum detrahitur, si hominem interficiat, ideo interficit, quia sanguis est missus, sed quia non justo modo, missus est, nec fortè etiam opportunè. *Verum nebulones nequissimi et ignarissimi id semper culpam convertere satagunt, non quod nocuit, sed quod per fas et nefas a cunctis vituperari exoptant.*"

It may be seen, by these last words, that Botal availed of the privilege which the Latin gives of such plain, blunt speech, both in prose and verse. Under this point of view we doubly felicitate ourselves in writing in French, the language, above all others, of politeness. But we may, I think, without, in the least, doing violence to the politeness in our language of which we are proud, apply to some of our cotemporaries, what Botal has said of some of his; to wit, that they study less to criticise what is injurious than what they wish that all should condemn, *per fas et nefas*, to make use of Botal's words.

If the Botal and Sydenhams have experienced such opposition in the use of their methods of abstractions of blood, what may we not expect, who shock received opinions still more than did our predecessors, and that without the support of such a great name?

Whatever novelty may happen to be contained in this little work, which we now make public, we shall, if it be necessary, put in practice the maxim of the English Hippocrates:—"Si qui reperiantur, qui vitio statim vertunt, si quis novî aliquid, ab illis non prius dictum, vel etiam inauditum, in medium proferat, hujus modi ego homines æquo me animo laturum spero."†

* See Sydenham, *Opera Medica*, vol. i. p. 74, ed. 1736.

† Ibid. p. 4.

NEW RESEARCHES
ON
ACUTE ARTICULAR RHEUMATISM
IN GENERAL.

PRELIMINARY CONSIDERATIONS.

ON a first view of the subject, it would seem that nothing could be more forbidding, or, one might say, more worn out, than a history of rheumatism in general, and of acute articular rheumatism in particular. It is not so, however; and I venture to hope that the researches which constitute the object of this work will offer some interest and novelty. They will prove, if I am not much deceived, that upon this subject, as well as upon many others, there was something for us yet to glean after our predecessors; and that it was destined to be submitted to that great law of progress and reform, which animates, fecundates, and governs in medicine as in all other things.

The newest and the most curious point of view of these researches is, without doubt, the coincidence of inflammation of the sero-fibrous internal and external tissues of the heart (*rheumatismal* endocarditis and pericarditis) with acute articular rheumatism.*

It is now about three years since observations collected with care presented to me this important connexion. I will, however, state upon what occasion I was led to fix my attention on the leading fact which occupies us. In auscultating the sounds of the heart in some individuals still labouring under, or convalescing from, acute articular rheumatism, I was not a little surprised to hear a strong, file, saw, or bellows sound (*bruit de râpe, de scie ou de soufflet*), such as I had often met with in chronic or organic induration of the valves, with contraction of the orifices of the heart. Now nobody would suspect an affection of this kind amongst the majority of persons who suffered from rheumatism and were submitted to our examination. Many of them were for the first time affected with articular rheumatism, and had hitherto enjoyed the most perfect health. I then called to mind other cases of acute disease of the heart, during the course of

* Inflammation of the internal membrane of blood-vessels often accompanies acute articular rheumatism, and I intend, hereafter, to treat on this point, which is, in some measure, extension of that which is now about to occupy us.

which I had heard the bellows and file sounds, and I resolved to explore, attentively, the heart and its functions in all those affected with rheumatism whom I should meet with. Thanks to this exploration, I soon discovered that an acute affection of the heart, in cases of acute articular rheumatism associated with violent fever, was not a simple accident, a rare, or as it were fortuitous complication, but in truth the most usual accompaniment of this disease.

I shall now endeavour to determine the precise law of this coincidence in the first chapter of these researches. First, however, I shall exhibit our knowledge in relation to this matter, before I entered upon the present work.

People long ago talked vaguely of gout flying to the heart, of rheumatism translated to the heart, &c. &c. But as the nature of these gouty and rheumatic metastases had never been determined, they were considered to be accidents and not very common occurrences.

A little later, in speaking of rheumatic metastasis, observers placed, it is true, pericarditis among the number of accidents which these metastases were capable of producing; but they spoke of it slightly or incidentally. It will not be amiss to make known with a little detail the opinions of some celebrated authors on this matter. And first, is it not singular enough that one of the greatest observers of the last century, Stoll, has absolutely said not a word on rheumatic inflammation of the heart; he who has at such length, and so happily, insisted on so many other rheumatic fluxions or inflammations, such as pleurisy, sore throat, dysentery, catarrh, and even phrenzy?

In a passage of his immortal *Essay on Diseases of the Heart*, Corvisart said, "that he was inclined to believe rheumatic and gouty affections to be, among others, a very frequent cause of one of the three kinds of adhesion of the pericardium, which he admits." Nevertheless, in treating of the causes of pericarditis in general, this illustrious physician does not utter a single word on the coincidence of this affection with articular rheumatism. Nor has M. Laennec mentioned this coincidence. It appears, likewise, to have escaped the notice of Chomel, as may be seen in reading his dissertation on rheumatism, and many published accounts of his clinic.

After reporting* a case of pericarditis, consecutive on the disappearance of a rheumatic affection, and which was fatal in twenty-seven hours, Professor Andral thus expresses himself, (in a note): "Rheumatic metastasis is not always followed by pericarditis, by pleurisy, or by pneumonia. The predominant phenomenon, in more than one case of this kind, is the lesion of function, which appears to be more serious than the lesion of texture. The same cause, which in the same day will produce pain in ten different articulations, all of them returning to the healthy condition as rapidly as they become diseased; this same cause, I say, may also, whilst its influence is exerted on some internal part, determine there—1st, a simple modification of

* Medical Clinic, vol. i, 2d ed. 1829.

action or dynamic ; 2d, a lesion of organization. This second lesion is but consecutive on the first, and is more rare than it."

These reflections of Andral are, in the main, perfectly just ; but it seems to me that we must not always confound under the same point of view of its seat, both the modifications of action and the lesion of organization, which may arise, whilst the rheumatic cause is directed on some internal part. But I shall return, farther on, to this nice point in the history of rheumatic affections.

Louis, in his excellent memoir on pericarditis, when treating of the causes of the disease, has not spoken of its coincidence with acute articular rheumatism. In the following passage, in the introduction to his work on diseases of the heart, Dr. Hope thus expresses himself on the subject which occupies our attention : "In acute rheumatism, there is no danger more common or more formidable than inflammation of the heart and of its membranes. If it be neglected when it exists in a high degree, (and even then it constitutes one of the most obscure and insidious diseases,) the patient sinks almost always under the immediate effects of the attack, or lives yet a little while a martyr to an incurable organic affection of the heart." At the time when I was making the researches recorded in the *Clinical Treatise on Diseases of the Heart*, I had no knowledge of the above assertion of Dr. Hope, to the development of which he has not devoted any part of his work. If he had well observed a large number of cases of rheumatic pericarditis, he would not have said that the patient almost always sinks under its immediate effects carried to a high degree, and that even then it constitutes one of the most obscure and most insidious of diseases. Whoever will carefully read the work of Dr. Hope, which is otherwise an excellent one, will admit that this acute observer has not added to what was previously known upon the coincidence of acute articular rheumatism with pericarditis, and that the coincidence, perhaps yet more frequent, of the same disease with endocarditis was not even known to him.

So true is it that Dr. Hope had not developed this important subject, that he has not even said a word on it in the chapter which he devotes to the inflammation of the interior of the heart and arteries, and in which he has done little more than repeat what we had already published in our *Treatise on Diseases of the Heart*, in 1824, when speaking of the same subject. Before our time, this inflammation was so little known that it had not even received a distinctive appellation, and had never been described separately.

In fine, an unanswerable proof of the novelty of the fact which we announce, is, as we shall see farther on, that it is generally enough contested still, notwithstanding what we have said in the *Journal Hebdomadaire*, in the *Dictionnaire de Medecine et de Chirurgie Pratiques*, in the *Clinical Treatise of Diseases of the Heart* especially ; and notwithstanding, also, what many young physicians, especially Dr. Desclaux,* who assisted at our observations have written.

* See Inaug. Dissert. Paris, 1835.

CHAPTER I.

Determination of the Law of Coincidence of Endocarditis and Pericarditis, or of Inflammation of the Internal and External Sero-fibrous Tissues of the Heart, with Acute Articular Rheumatism.

I SHALL divide this chapter into two parts. In the first will be exhibited the generalities of my subject, and the exact relationship of endocarditis and pericarditis with acute articular rheumatism. In the second, I shall succinctly relate a certain number of new special facts in support of what I shall have advanced.

PART FIRST.

GENERAL VIEW AND DISCUSSION OF THE SUBJECT.

I.

Before bringing forward the new facts, proofs of which I have submitted in the present work in addition to what I had previously announced in other places, upon the coincidence of endocarditis and pericarditis with acute articular rheumatism, it behoves me to repeat here the passages in the *Clinical Treatise on Diseases of the Heart*, relating to this subject, as follows :

“Pericarditis exists in about one half of the patients affected with acute articular rheumatism. Under this point of view, pericarditis may, in some measure, be regarded as one of the elements of the disease called acute articular rheumatism, which considered under a more exact and larger point of view than has yet been done, constitutes an inflammation of all the sero-fibrous tissues in general, developed under a special influence. Now the pericardium being of a sero-fibrous nature, like the tissue which is the seat of rheumatism properly called articular, it is not astonishing that pericarditis so often coincides with this last ; that the rheumatism of the pericardium, in a word, takes place under the circumstances which produces a rheumatism of the articular synovial membranes and of the fibrous tissues upon which they are placed, which is, in fact, but an articular pericarditis.”

“Endocarditis like pericarditis, manifests itself under the same influences as acute articular rheumatism, during the course of which it often manifests itself. In truth, as this inflammation can thus be developed in a manner purely metastatic, according to the expression of some pathologists, it is not the less true, that more frequently, at least from the facts within our own experience, the internal sero-fibrous tissue of the heart is affected simultaneously

with that of the articulations. Moreover, rheumatic endocarditis and pericarditis almost always accompany each other.”

“Up to the present time the acute phlegmasiæ of the heart concomitant with rheumatism had been entirely misunderstood in the great majority of cases; and as they had not been properly treated many must have passed into the chronic state. After these organic lesions of the heart, upon the origin of which so few authors had left us any satisfactory explanations, appear serious lesions of the valves and the gouty asthmas of certain practitioners.”

“Let no one suppose that the above ideas constitute one of those idle theories which reasonable minds have henceforth renounced forever. By no means. Every day, at the bed side of the sick, true observers can appreciate at their real value the reflections which we submit to their enlightened judgment. Let them attend those clinics where they see acute articular rheumatism last thirty, forty, and more days, and they will see whether, as some classical practitioners aver, the febrile reaction which outlasts the inflammatory period of the rheumatism be a new kind of essential fever; or whether it does not belong, on the contrary, in a great many cases, either to pericarditis or endocarditis, or to an endo-pericarditis misunderstood.”

These propositions, which are extracted from my *Clinical Treatise on Diseases of the Heart*, are not, I repeat, vain hypotheses so justly banished from the domain of exact and positive medicine; but are truly inferences which flow naturally and as of themselves from the comparison of a great number of facts well observed, well recorded, and well weighed. It is necessary now to recal these facts to our readers, for the detail of which we refer to the work in which they have been reported.

II.

The number of separate observations, contained in the two chapters of the above-mentioned treatise consecrated to pericarditis and endocarditis, amount to ninety-two, viz. thirty-seven of pericarditis and fifty-five of endocarditis. Now, of these ninety-two observations, we have thirty-one in which pericarditis and endocarditis coincided with articular rheumatism, viz. seventeen of pericarditis and fourteen of endocarditis. Thus, then, about one half of the cases of pericarditis and one fourth of those of endocarditis existed in rheumatic individuals. It follows, therefore, that among about a third of the individuals affected with pericarditis and endocarditis, articular rheumatism was also present.*

It is demonstrated by these calculations that inflammation of the pericardium and of the endocardium has coincided with an articular rheumatism in a third of the cases. But we are far from asserting,

* See observations 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 27, 30, 31, 32, 33, 34, 35, 41, 42, 51, 52, 81, 84, 85, 86, 87, 88, 89, 90, 91, and 92 of the *Traité Clinique des Maladies du Cœur*, etc.

that in the remaining two thirds there did not exist articular rheumatism. In fact, many of these cases are deficient in etiological details ; and it appears probable enough, that amongst these last a certain number belonged also to the list of rheumatic pericarditis and endocarditis.

III.

Among the circumstances which might have put us at least on the track of the discovery of the fact which we are developing, we should, unhesitatingly, place in the first rank that violent fever with palpitations, and a pulse full, strong and vibrating, sometimes irregular and intermittent, which often continues after the articular affection. To find the explanation of this kind of pathological mystery, to localize, in fine, the rheumatic fever without rheumatism, as it is called, it would have sufficed to submit to an attentive and rigorous exploration the state of the circulatory system in general (including the blood), and that of the heart in particular. But that was never even dreamed of. Some practitioners seem to have done more. From an attachment to the doctrine of the essential nature of so many fevers, this revered dogma, of which, notwithstanding their efforts, the discovery of the phlegmasiæ of the digestive canal, of that especially of the glands of Peyer, had sapped the foundations, they idiopathized, in some measure, as a requital, the fever called rheumatic. It is true, that they are on the point of changing it back, after their manner ; and if we may put faith in a certain journal, they are about referring the rheumatic fever without rheumatism to typhus fever ; that is to say, to a fever which has for its anatomical character an affection of Peyer's glands !

This localization appears to us unfortunate enough, at least in the cases where all the signs of pericarditis, or pleuritis with effusion, or endocarditis, &c., are so evident that they cannot escape the least experienced eye. One might, in truth, say that certain observers are not less ready in finding what does not exist, than in misunderstanding what does really exist.

IV.

However this may be, we have, as already stated, laid down the position in the *Clinical Treatise of Diseases of the Heart*, that in nearly half of the cases of acute articular rheumatism, this disease coincided with an inflammation of both the sero-fibrous tissues of the heart.

The calculation of this coincidence, or of this relationship, has been taxed with exaggeration, and all kinds of arguments have been advanced against us. The following are the two principal objections. One class has reproached us with imagining the existence of pericarditis and endocarditis ; the other class has responded to our assertion, that if, in truth, we had so frequently met with the exist-

ence of pericarditis and endocarditis, this was owing to the medical constitution, and that it would be wrong to generalize an exception, a fact of accidental coincidence.

As to the first objection, or rather the first accusation, it is too deficient both in politeness and medical logic for us seriously to answer it. As to the second, we refer to future medical constitutions; and we shall owe the greatest obligations to those who, like Professor Chomel in the last summing up of his clinic, already cited, shall be able to offer to us forty-nine well observed cases of acute articular rheumatism, in which no example of pericarditis or endocarditis can be pointed out. We cannot forbear from remarking, on this occasion, that the cases in question are a complete answer to the objections presented above; to wit, that the medical constitution has been the cause of the coincidence of these two diseases with rheumatism in the cases observed by us. In truth, we gathered these facts at the same time that M. Chomel met with ones apparently contradictory. Now the medical constitution was the same in both. What then means this apparent contradiction? That we have attentively sought pericarditis and endocarditis, and that others have not sought them. And, certainly, to find we must seek, and seek with much care, and with a perseverance that nothing can weary or divert from its purpose.

V.

What then, we shall be asked, are the certain indications of the inflammation of the sero-fibrous tissue of the heart (pericarditis and endocarditis)? As I have exposed them at length in the *Clinical Treatise of Diseases of the Heart*, I shall be content here to repeat those which are most evident.

The existence of pericarditis is certain in the individual affected with acute articular rheumatism, when the following symptoms are present: a dull sound over the precordial region, much more extended than in the normal condition (double, triple in every direction); arched form of same region; remote beatings of the heart, but little or not at all sensible to the touch; sounds of the heart distant, obscure, accompanied by different abnormal sounds, some arising from the rubbing of the opposite coats of the pericardium against each other, others from the complication of pericarditis with valvular endocarditis; a pain more or less acute at that region of the heart;—palpitations, irregularities, inequalities, and intermissions of the pulse are sometimes conjoined with the above symptoms.

The coincidence of endocarditis with acute articular rheumatism is, to our minds, certain, when the following signs are present.

Bellows, file, or saw sound in the precordial region, with a dulness of this part on percussion, to an extent much more considerable than that in the normal state, and which, also, sometimes presents, but in a less degree than in pericarditis with effusion, an elevation or abnormal

arching; the movements of the heart elevate with force the precordial region; and they are often irregular, unequal, intermittent, and accompanied at times with a vibratory trembling. The pulse is hard, strong, vibrating, unequal and intermittent, like the beatings of the heart.

It appears from the above that there are signs common to pericarditis and endocarditis, and that the differential physical signs are not always well marked. Cases, also, present themselves in which it is difficult enough to determine whether there is pericarditis or endocarditis, and whether one of these affections, once well recognized, exists alone or combined with the other. These are the cases in which pericarditis may be present without an evident effusion, and with a production only of false membranes. Then, indeed, the beatings of the heart are sensible to the touch, as in simple endocarditis, and the saw and bellows sound, the vibratory trembling of the precordial region, may be present in this case as in endocarditis. After all, this distinction may be thought really more curious than useful. It is enough for the practitioner to know that one of the two exists, since the treatment is essentially the same, whether there be only pericarditis or endocarditis, or whether there be endo-pericarditis.

Once again, in well marked cases nothing is easier, with experience and habit, than to recognize the presence of endocarditis, or of pericarditis, or of endo-pericarditis with rheumatism. But in these phlegmasiæ, as in all the others, there exists nice degrees; and I acknowledge that in such cases the diagnosis is both difficult and uncertain. It is, indeed, only by a long attendance on hospitals that a necessary tact for such a diagnosis can be obtained. It is not, finally, by facts of this last kind that we pretend to be able to demonstrate the law of coincidence of endocarditis and pericarditis with acute articular rheumatism. We shall only remark that this last would very often itself be misunderstood, in its nicer degrees, if, instead of constituting external parts, the articulations were changed into internal organs; and, yet still, although they might have been misunderstood, they would not the less have existed. Such precisely is the rheumatism of the sero-fibrous tissues of the heart.

When individuals, in whom the above signs are recognized, die, examination of the body discovers the anatomical characters of pericarditis and endocarditis, fully proved in observations 1, 4, 5, 6, 7, 13, 14, 19, 43, 45, of the *Clinical Treatise on Diseases of the Heart*.

This is the place to recur to the distinction, so important to be established between the simple modification of action, or dynamic, and the lesion of organization, which, as M. Andral has well said, can be equally determined by the rheumatic cause, whilst it exerts its influence on some internal part.

To distinguish between the two kinds of lesion of the heart we are speaking of, it is necessary to have recourse to a careful observation of the signs furnished by the physical methods of exploration, such as percussion and auscultation. Without it, the distinction is absolutely impossible; and it is because we rely on the facts furnished

by the dynamic functional signs, such as palpitations, irregularities, intermissions of the beatings of the heart and pulse, &c. that physicians daily mistake for organic lesions of the heart simple nervous affections, and *vice versa*.

The frequency of errors of this kind would be, indeed, almost incredible, did we not know how many physicians are even now too little familiarized with percussion and auscultation; and what deserves remark is, that not a few commit this error in their own cases. It would be too tedious to detail here all that would be necessary to avoid the above error. It will be sufficient to mention that the lesions of the heart, called nervous or dynamic, when they are pure or simple, never give the physical signs just announced. Hence, every time that we discover pains, palpitations in the præcordial region, irregularities, intermissions in the beatings of the heart, with or without a tendency to syncope, oppression, &c., and that these dynamic phenomena are not accompanied with abnormal dulness in the præcordial region, and permanent bellows, saw, or file sound, &c., &c., we may rest assured that there does not really exist endocarditis or pericarditis.

If the dynamic or functional phenomena, of which we are speaking, are connected with an external rheumatic affection, the lesion on which they depend is to endocarditis and pericarditis what the simple rheumatic neuralgias of the limbs are to arthritis and rheumatism. This lesion is a sort of *rheumatic neuralgia* of the heart, either isolated, or combined with a neuralgia of the phrenic, intercostal, &c., nerves. But the neuralgia of the heart is announced by an irregular movement, and not by a true pain; because the nerves of the heart are nerves of motion, and not of feeling; and, under this point of view the word *neuralgia* is not suitable here, any more than in the cases where the lesion which this word represents affects the external nerves destined only to motion, such as, for example, that of the seventh pair (facial nerve).

VI.

An objection which will not fail to be made is this:—It is well known, we shall be told, by every physician, that nothing is more serious than an inflammation of the heart. Now acute articular rheumatism scarcely ever proves fatal;—of course, it is not possible that this inflammation of the heart can be as prevalent as is alleged.

The defect in this kind of reasoning is very apparent. Inflammation of the heart, thus far, has appeared so fatal only from the circumstance that it was only detected in those alone who sank under it. Already M. Louis, in his memoir, has proved that the fatality of pericarditis has been exaggerated. Facts of my own more than confirm the assertion of this gentleman as to pericarditis, and moreover they put to rest all doubts that intense endocarditis, which is much more serious generally than pericarditis, is, in many cases, not fatal even under improper treatment.

If it be true that acute inflammatory affections of the heart are much less fatal than has been supposed, it is but too true, at the same time, that while persisting, they ordinarily leave in their train lesions called *organic*, under which the invalid finally sinks, when they affect those parts whose functions are necessary to life. This is what actually takes place when endocarditis has been followed by thickening, induration, adhesions, vegetations of the valves with deformity, obliterations of these valves, contractions of the orifices, dilatation of the cavities, hypertrophy of the muscular substance, &c.

I shall apply (always with suitable restrictions,) to rheumatic pericarditis and endocarditis, what Stoll said of the other rheumatic phlegmasiæ, viz., that they are generally less serious than what he terms *true inflammation*.^{*} It appears to me that one of the chief causes of this difference arises from the fact that inflammation called *rheumatic*, extends much in surface, but not in depth, whilst the *true inflammation* of Stoll acquires in depth what it wants in surface: the first ought to yield much more easily than the second. It will be said that in rheumatic inflammations the great number of parts, in which the affection has its seat, in a measure serves the purpose of revulsion; and that the blood and nervous fluid, attracted at the same time to so many different points, cannot be carried in sufficient quantity to any of them to constitute a deep and lasting inflammation. However it may be with these speculative views, which I value very little, it is still true that rheumatic pericarditis and endocarditis are not so serious as one would, *à priori*, suppose them to be, and that pericarditis in particular, the only one of these two affections upon which authors have imparted any knowledge whatever, is not generally mortal, as Corvisart has taught us.

VII.

But on this point more than enough has been said. Let us hasten to record briefly, the new facts which we have gathered.

From the beginning of August, 1835, to that of October following, I have met with twenty new cases of articular rheumatism, either recent or of some standing, of which the following is the description under the point of view which now engages our attention.

I have placed these twenty cases under three heads. The first comprises those relating to general acute articular rheumatism, accompanied by fever of more or less violence.

The third head is confined to cases of mild articular rheumatism, without fever.

^{*} I must confess, however, that I cannot find in Stoll a precise definition of what he calls true inflammation, nor what he designates by the name of rheumatic inflammation. I imagine that by the first of these expressions he means a fixed inflammation, in some sort phlegmonous, which terminates in suppuration. We shall see, farther on, that the difference which exists between the two kinds of inflammation compared by Stoll, has no reference really to their nature, which is always the same, but to their degree, their form, their seat, and their causes,—all these things being very variable.

Between these two I have placed a second division, containing cases in which a lesion of the heart, called organic, is met with in individuals formerly affected with prolonged acute articular rheumatism, and in which relapses had occurred. This head is closely allied to the two others ; it supports the first, and, reciprocally, is supported by it. In fact, only half of a disease is known when it is studied in the acute stage alone. To know it fully it must also be examined in the chronic stage. Now what is this organic lesion of the heart in subjects formerly affected with articular rheumatism, if not endocarditis and pericarditis in a chronic form ? that is to say, with accidental productions, transformations, thickening and induration of tissues formerly inflamed, &c.

Let us begin with the four last cases (17, 18, 19, 20), in which the rheumatism was without fever. In respect to them we would only remark, that they existed without any affection of the sero-fibrous tissues of the heart. They confirm what we have already said of similar cases before observed, viz : that the law of coincidence of endocarditis and pericarditis with an acute articular rheumatism, does really apply, with some few exceptions, only to cases in which this disease is diffused and accompanied by fever.

Among the nine cases of the first head, six exhibited the most certain signs of rheumatic inflammation of the sero-fibrous tissues of the heart (1, 2, 3, 7, 8, 9). In the three other cases this coincidence was less evident ; nevertheless it existed really in two of them (4, 5), and in one only it appeared to be doubtful (6).

Thus then, in eight times out of nine, an acute rheumatism of many joints, was accompanied by rheumatism of the sero-fibrous tissues of the heart. The seven cases comprised under the second head cannot be taken into regular account in the present question, since the organic affection of the heart (to which was joined in some patients an organic lesion of the aorta) was not connected with articular rheumatism actually existing, but rather with old attacks of that malady. Could it be indeed by chance that out of seven cases of this disease not one would be found in which it was not preceded by a violent rheumatism of long continuance ? Could such an opinion be sustained in opposition to those other facts which show that an acute articular rheumatism, actually existing, is so often accompanied by endocarditis or pericarditis, that is to say, of rheumatism of the sero-fibrous tissue of the heart ? Would it not be more correct to admit, as we have elsewhere endeavoured to demonstrate,* that it is to this last affection, ill understood till now, that we must attribute a large portion of the lesions of the heart called organic.

In fine, can we from these new cases be accused of exaggeration in saying, that in one-half of the instances of diffused acute articular rheumatism with much fever, the sero-fibrous tissue of the heart is found affected in like manner as the joints ?

Ought we not on the contrary to make a formula of the law of

* Clinical Treatise on Diseases of the Heart.

coincidence, as follows : In the great majority of cases of diffused acute articular rheumatism with fever, there exists in a variable degree a rheumatism of the sero-fibrous tissues of the heart. This coincidence then is the rule, and the non-coincidence the exception.

PART SECOND.

NEW OBSERVATIONS IN SUPPORT OF THE PRECEDING DOCTRINE.

I.

Cases of Diffused Acute Articular Rheumatism, with Fever of more or less Violence.

CASE I.—*Sept.* 36, 1835, Dr. Bouvier, at La Charité Hospital, requested me to see a patient who presented symptoms of an affection of the heart, coinciding with acute articular rheumatism. It was a young man, aged 19, who entered September 3. The articular rheumatism for which he had been admitted had been of a week's continuance, was accompanied by a strong fever, and had attacked almost all the joints. The first and second day after his admission a potion, containing eight grains of tartar emetic, was administered ; copious evacuations up and down followed, but without relief. The following days he was bled three times, after which the disease was permitted to take its course. Two fresh bleedings were however practised ; and when an affection of the heart was detected leeches were applied to the precordial region.

Sept. 26.—I observed the following symptoms—scarcely had I applied my hand over the heart when I felt a very distinct vibration, which immediately led me to announce the existence of the bellows, file, or saw sound. Accordingly, on applying my ear to the chest a double saw sound was heard, more perceptible at the systole, with a kind of dry scraping towards the apex of the heart, which obscured the valvular flapping, or rather absorbed it almost completely. The beatings of the heart could be distinctly felt by the hand to an extent more considerable than in the healthy state, and the dulness of the precordial region occupied a space at least double that of the healthy condition, being four or five inches each way, without evident arching of that region, which was painful only under a strong percussion. The beatings of the heart and pulse were very frequent, 124 in the minute. The joints of the extremities, of the superior especially, were yet somewhat tense to the touch, swollen and painful : prostration, loss of flesh, complexion rather muddy, or of a dirt colour.

Diagnosis.*—*Endo-pericarditis, with hypertrophy of the whole*

* At this time it appeared to us that there was no exudation of false membranes, which was probably one of the causes of the extensive scraping sound that was heard. At all events, the swelling of the valves and in consequence the contraction of some of the orifices, appeared to us to concur in the production of this phenomenon.

heart.—I revisited this patient October 4th ; the joints were free from pain, but the fever continued to a high degree (128 pulsations). The body was covered with *sudamina*.^{*} The dulness of the precordial region was at that time accompanied by a perceptible arching, and with the hand, we could distinguish, but obscurely, the beatings of the heart.† The extensive saw sound is replaced by a rasping one which does not completely mask the valvular flapping.

October 23. Fever; 128 to 132 pulsations. The patient motionless in his bed, is fearful of the least touch; his limbs are supported by cushions and have again become painful; his skin is dry; marasmus well defined. He will not permit percussion on the precordial region, but we noted the phenomena following simple touch, inspection, and auscultation. With the hand we feel obscurely the beatings of the heart, which are regular and without vibration; the arching is scarcely marked, but it is not altogether effaced; the rasping sound is doubtless less, but is yet very distinct over all the precordial region, and has its maximum at the spot corresponding with the left cardiac orifices. Respiration is hurried, 32 in the minute; speech broken, as if a pleuritic effusion had taken place, which seems to us to be very probable. When quiet there is no pain, either in the region of the heart or at the sides; and no more cough than in health.

Food increased. He did not appear to be afflicted much with the serious condition in which he was, and thought himself better than before.

CASE II.—A hack-driver, aged 35 years, was admitted August 12, 1835, in the fifth or sixth day of a violent articular rheumatism; the joints of the feet, knees, hands, wrists, elbows, and shoulders having been attacked. No evident arching at the precordial region on his admittance into the hospital. Tumultuous beatings of the heart sensible to the hand, which they raise up with force, as true palpitations would do: after several hurried beatings, an intermission takes place. The shock of the heart against the chest conveys to the ear, applied over the precordial region, a very pure metallic tinkling. The valvular sounds (*tic-tac* of the heart) are dull and stifled. The precordial region gives out a dull sound about three inches square. Pulse strong, full and vibratory, with intermissions and irregularities, like the beatings of the heart, which are 120 in the minute; the skin is hot and bathed with sweat.

16th and 17th—the fifth and sixth days after admission—the heart was completely free; regular beatings at 84–88; valvular sounds healthy and clear. About two inches square of dull sound.

20th.—An exposure to cold is followed by a relapse. Same phenomena in the region of the heart as on his admission. These yield once again to treatment.

24th.—Another exposure to cold followed by another relapse; 124 to 128 pulsations; the intermissions and irregularities of the

* The patient had had for many days very copious sweats.

† The pericarditis was undoubtedly then accompanied with effusion, and the rasping sound was caused by the lesion of the valves and orifices.

pulse and the beatings of the heart, the obscureness of the sounds, &c., are manifested a third time. This lasts during the two following days, diminishes on the 27th and 28th, and then vanishes. The pulse continues, however, to be vibratory, and the beatings of the heart very strong, with obscureness of sound, long after the intermissions.

September 13.—When the patient was discharged, there was no sign of a disease of the pericardium or endocardium, if we except a very obscure pericardiac rasping.

Six bleedings at the arm, scarified cups twice, and two blisters to the precordial region, during the course of the disease. Twenty-eight bowls* of blood were taken away, amounting to about seven pounds.

Notwithstanding the several relapses, brought on by his imprudence, he was cured by the twenty-fifth day; but he had not yet recovered his flesh and ordinary strength.

CASE III.—A woman aged 35 years, of a truly monstrous fatness, was delivered August 25, 1835. She has had, for five days past, one of the most violent articular rheumatisms that could be met with: all the joints were affected, and she was rendered perfectly motionless; fever very high. The excessive size of her breasts prevented us from satisfactorily practising percussion, but auscultation discovered a very distinct bellows sound. We did not detect irregularity or intermission in the beatings of the heart and pulse, till the seventh day after the admission of the patient; the joints then being almost without pain.

First day of treatment—bleeding to six bowls in the morning and four in the evening. In the interval scarified cups over the precordial region to the extent of three bowls. (In all 52 oz.) Second day—four bowls; forty leeches. Third day—four bowls. Fourth day—three bowls. Fifth day—most of the joints are free from swelling; the pain and the fever have disappeared; a slight bellows sound remains. Convalescent—soup; compresses on the joints, which are yet slightly swollen; two pills of gummy ext. opium. Sixth day—irregularity of pulse; omit the soup. Eighth and ninth days—pulse has become regular. At the termination of the copious sweats, sudamina, as often happens, covered the skin, also a miliary eruption and red spots.

September 11.—Fourteenth day of treatment—convalescence was established; pulse 80 to 84; no fever; joints freely moved, and only some obscure pains; soup resumed; food is gradually increased. On subsequent days, the small joints of the hand were slightly re-attacked; but it was only necessary to cover them with moderately tight compresses smeared with mercurial ointment.

The opium and baths were continued till September 25, when the supply of food was augmented, and she began to walk. The bellows sound had quite ceased. She left, October 5, quite well, and the food was increased to the half allowance sixteen days after admission. She complained of some pain in her shoulders, which, however, she moved very well.

* One bowl is equal to four ounces.

CASE IV.—*September 23, 1835*, a man, aged 28 years, was admitted after having been attacked six or seven days before with an acute articular rheumatism, occupying chiefly the joints of the feet, insteps, and knees, and accompanied by a violent fever ; pulse 92. The sounds of the heart are obscure, stifled, dull as it were, and scarcely discernible ; and yet on the first day that we saw the patient there was no abnormal dulness in the precordial region, but on the next it was very different. At this time a dulness of three inches and a half square was evident, with slight arching of the precordial region, and the sounds of the heart distant and deep ; the hand could not feel its beatings.

Repeated bleedings subdued the disease in five or six days ; the dulness ceased, and the sounds were much nearer to the ear. These remained as if muffled, owing to the presence of a layer of lung which covered the pericardium. That this was the case, was proved by percussion, which gave a clear sound, and by auscultation, which distinctly revealed the respiratory murmur at this point.

To what else but to an effusion in the pericardium, the consequence of a rheumatic affection of this membrane, could be attributed the phenomena above mentioned ? The endocardium, and especially the valves, were they affected ? It might have been, but there was no positive proof.

CASE V.—A young man, suffering from acute articular rheumatism, accompanied by a violent fever, was admitted September 5, 1835. Beatings of the heart very strong, accompanied by a bellows sound, perfectly distinct. On the fifth day of treatment, by repeated bleedings, the rheumatism had ceased, and with it the fever and bellows sound of the heart ; the patient left the hospital fifteen days after his admission.

CASE VI.—*September 21, 1835*—A female, aged 30 years, affected during five or six days with acute articular rheumatism. Previous to admission, she had been bled three bowls, and twelve leeches had been applied. The rheumatism was of the feet and knees, principally on the right side, and the least movement made her cry out ; circumference of right knee 12 in. 6 lines, that of left 12 in. 3 lines. Skin is stretched, shining, and marked by veins, more dilated than in the healthy state ; pulse 124 ; heat, and abundant sweats, and sudamina about the neck. The violence of the fever did not coincide with the small number of joints attacked, and we thought that it might probably in part be caused by inflammation, or if you will, by rheumatism of the sero-fibrous tissue of the circulatory apparatus. There was no abnormal dulness in the precordial region, but the beatings of the heart were very strong and the valvular sounds much more dull than in the healthy state, which led us to think that there was a valvular endocarditis in the first degree,—that of simple irritation or hyperæmia ; V.S. four bowls ; scarified cups to the knees, three bowls ; then compresses smeared with mercurial cerate slightly bound on ; emollient drinks ; diet (abstinence).

22d.—The pulse in the evening had fallen to 90.

23d.—Very striking amendment ; extends the right knee, and only suffers when the movement is quick ; the circumference of both knees lessened three lines ; V. S. 3 bowels.

24th.—Sounds of the heart quite clear ; no pain in the joints ; knees of diminished size ; is convalescent.

25th.—Right knee 11 in. 10 lines ; left 11 in. 8 lines ; resolution complete ; some baths finished the treatment.

She left the hospital, October 5th, well, thanking us much for having so soon cured her.

CASE VII.—*August*, 1835.—A female, aged 30, has had articular rheumatism twenty days, chiefly in the hands and knees ; fever strong ; pulse regular, full and vibratory ; 100 or 112 in the minute. The precordial region is raised by beatings strong and extensive, similar to true palpitations ; and in it can be heard a well pronounced bellows sound. The dulness occupies double the healthy space ; no pain in that region. Endocarditis with hypertrophy is evidently the chief affection at this time.

Taking into view the duration of the disease, the state of emaciation and weakness of the patient, I abstained from repeated bleedings ; and I announced that the case would be tedious. Some blood had been drawn before admission. Two V. S., one of four bowls and the other of three ; scarified cups, four or five bowls ; a large blister over the precordium ; digitalis externally (endermic method), and internally ; strict diet, baths, diaphoretic drinks, poultices to the joints were the means employed. The joints became entirely free many days before the fever, which still lasted with bellows sound and violent beatings of the heart.

On September 11, the bellows sound had much diminished ; the beatings of the heart were not so strong or extensive, and the fever of no account. She ate her quarter allowance.

13th.—She wished to be dismissed : no joint was affected ; heart calm ; bellows sound scarcely perceptible. Yesterday she walked about, up and down stairs, and felt no inconvenience in breathing.

It is to be hoped that, notwithstanding the long duration of endocarditis, there remains no germ of an affection of the heart called organic.

In this case, bleeding was not practised according to our method ; and the disease was spun out to the period generally assigned to it by authors, viz—forty to sixty days.

CASE VIII.—*August*, 1835.—A woman, aged 30 years, with an articular rheumatism of eight days' duration. She was a miserable beggar of Vitry, broken down by want. We bled her according to the ordinary way, and I predicted that the disease would be spun out ; the more so, as we detected the coincidence of endocarditis. There was, in fact, a clear bellows sound with palpitation and dull percussion ; pulse vibratory, and 120 ; abundant sweats ; sudamina. After very moderate V.S. 3 bowls, and by cups 5 bowls, tinct. colch. was given for ten or twelve days without any effect : pulse 104 to 108.

A large blister was put on the precordium, and ten to twelve grains pulv. digital. sprinkled on it daily ; the pulse became slower after its application ; the rheumatic fever diminished, then ceased entirely, and the patient wished to go away. However, as the bellows sound, though not so evident, still lasted, and as it was necessary for her to gain more strength, we concluded to detain her sometime longer. She had no pain either in the joints or in the region of the heart, and the respiration was quite free ; at least when at rest.

September 10.—She eats the half allowance. There was only a bellows sound, but very much less than at her admission, and only perceptible during the systole ; whereas when she was admitted it was double. She went away on the 13th ; pulse 72 and regular ; no palpitation ; easy respiration and felt well ; nothing abnormal except the slight bellows sound could be detected.

CASE IX.—September 2.—Mr. Bouvier showed me a rheumatic patient who was on half allowance. He had entered twenty-five days before. We detected the following symptoms—slight arching of the precordium, which is dull on percussion, to the extent of about four inches square ; a very strong double bellows sound, which towards the apex of the heart was accompanied by a dry pericardiac rubbing, and a sound somewhat crackling. As to the double bellows sound, properly so called, its maximum of intensity lay towards the aortic orifice, at the middle of the sternum. There, during the diastole of the heart, the bellows sound seemed to be produced by a true aspiration.

The pulse was *bis feriens* or *dicrotic*. It is not very rare to find the pulse to which this name is applied ; but I never felt it to such a degree as in the present case. At the hollow of the sternum the arch of the aorta presented in the most evident manner the double movement that I had felt at the radial artery.

This kind of pulse in an individual in whom there was a bellows sound, consequent on a rheumatic endocarditis excited powerfully my attention. Might it not be possible, that in this person there was an aspiration of a certain quantity of arterial blood during the diastole of the left ventricle allowed by the insufficiency of the aortic valves ? This is so much the more probable, as we have remarked that the bellows sound which is heard in the region corresponding with the aortic orifice gives during the ventricular diastole the idea of a true sound of aspiration. In this case of insufficiency of the aortic valves, we should discover during the diastole of the left ventricle a reflux in the heart, such as we observe in the right auricle and in the veins, in consequence of insufficiency of the tricuspid valves.*

Another case was shown me, by M. Lerminier, of rheumatism accompanied with endocarditis.

* Mr. Bouvier showed me next to the above patient one who presented this reflux, called venous pulse, in the clearest manner. The column of blood in the jugular vein could be distinctly seen descending quickly during the diastole of the right ventricle, then reflowing into the vein during the systole of this ventricle, the valve of which is defective.

II.

Cases of Organic Lesions of the Heart and Aorta arising from Old Rheumatic Affections.

CASE X.—*September 9, 1835.*—A man, aged 29, who after an acute articular rheumatism experienced palpitations and other accidents, which are commonly assigned to organic affections of the heart and large vessels. Fifteen months since he had rheumatism at the hospital Beaujon.

By exploration several times with the greatest care, we detected the following symptoms: The beatings of the heart shake all the lower part of the left side of the chest, the epigastrium, and even the umbilical region; they are accompanied with a double rasping sound, and with a metallic tinkling, owing to the stroke of the heart against the precordial region; its beatings isochronous with the pulse, raise the middle of the sternum and the corresponding part of the right side of the chest, even on a level with the bosom; and there can be heard a bellows or rasping sound which is double and stronger even than in the precordial region itself, at the same time that we can feel a fine vibratory trembling which is propagated to the arch of the aorta (the beatings of which can be easily seen at the hollow of the sternum), as well as to the carotid arteries; no devil sound.*

There is a dull sound on percussion from the right to left breast about nine inches: vertically the dull sound is four inches at the precordial region. There is also an evident arching at this part; the dulness extending vertically to about two inches below the clavicle; pulse regular and vibrating; no dyspnoea when at rest; has neither ascites nor anasarca, but cannot go up stairs without panting, &c.

From the above signs we could easily discover an enormous hypertrophy of the heart, with aneurism of the aorta, and induration of the left valves. V. S. two or three bowls only, as he was pale and thin. Eight days after admission he went away without much amelioration.

CASE XI.—In the early part of September 1835, we received in the hospital a man, aged 30 years, who had been at the St. Louis Hospital twice before for articular rheumatism, also at the Hotel Dieu and La Charité for the same disease, according to his statement. When first seen by us he was reduced by diarrhoea, and had ascites and anasarca. He died on the 17th of September.

Among the lesions found upon inspection of the body I will here only note the following. Milky hue of the external surface of the right auricle; tricuspid valve sensibly thickened at its free edge; a white, serous, and easily detached layer accidentally developed on the pulmonary portion of the right ventricle; some yellow points on the bicuspid and aortic valves; these are somewhat thickened but well formed; orifices of the heart free; a slight contraction of the ventricles, particularly of the left, whose sides are from eight to ten lines in thickness; old adhesions in the chest.

* A high degree of the bellows sound.

CASE XII.—*Sept. 23, 1835.*—A man was received, aged 23 years, with mild articular rheumatism, unaccompanied by fever, of fifteen days' duration. Three years previously he had the first attack. It was very violent and lasted six weeks. He had been treated by baths; palpitations followed; and now he presents all the signs of a serious organic affection of the heart. Strong beatings of the heart, which on the least fatiguing exercise become violent palpitations; these beatings are regular, 68 to 72 in the minute; pulse vibrating; the precordial region presents an evident arching, and gives a dull sound of four inches square. We can feel a fine vibratory trembling, and hear a double file and saw sound, which almost absorbs the valvular flapping. Towards the apex of the heart the first rasping sound is changed into a cooing, rather hoarse and stifled; the shock of the point of the heart corresponds with the sixth intercostal space; this and the fifth, as ascertained by measurement, are evidently enlarged. As he is thin, the beatings of the heart can almost be seen as well as if it were exposed; it is observed to return upon itself, to contract when the apex strikes the chest, and afterwards to dilate. The shock of the point of the heart isochronous with the pulse, does not appear to result only from the restoration of its position, but also because the blood, pressed on all parts by the systole, in reacting against the apex, which is moveable, gives it a brisk shock. There is no infiltration, and no evident anhelation, except in ascending a height, or after some fatiguing exercise.

There is evidently a large hypertrophy of the heart with induration, thickening of the valves, with much obstacle to the circulation, and perhaps white layers on the pericardium; all these lesions are the result of misunderstood endo-pericarditis, and which, as is commonly alleged, has passed to the *chronic* state. The treatment can only be palliative; radical cure is not in the physician's power.

He left the 10th, in the same state. The day before, he went upstairs with but little anhelation, but with increase of the palpitations of the heart.

CASE XIII.—*Sept. 5, 1835.*—A woman, aged 49 years, entered the hospital with all the signs of a serious organic lesion of the heart, five months ago, from an acute articular rheumatism, for which she was three months at the Hotel Dieu. She had been treated by baths, and was not once bled.

There is a double bellows sound in the precordial region, whose maximum of intensity corresponds with the left orifices. This sound completely absorbs the valvular flapping; it is accompanied by a distinct purring and trembling. The beatings of the heart are precipitous, tumultuous, intermittent, irregular, and of a greater extent than in the normal state; pulse 140, small, unequal, irregular, intermittent; jugular veins swollen; face blue and livid; anhelation; anasarca.

Diagnosis.—Hypertrophy of the heart consecutive on a rheumatic endocarditis, terminating in thickening and induration of the valves.

Under the operation of rest, digitalis, a strict regimen, and diuretic drinks, the anhelation was calmed, the pulse became more regular and

voluminous, and fell to 68 ; the anasarca was dissipated, and the beatings of the heart were only accompanied by a double sound, dry like the rubbing together of a rather coarse parchment. Rheumatic pains came on in the shoulders without swelling or redness. She eats a quarter allowance, and is tolerably easy when at rest : but it is almost certain that the least exercise will bring back all her complaints.

CASE XIV.—*September 11, 1835.*—A woman, aged 38 years, has experienced during the last six or seven years numerous attacks of acute articular rheumatism, for one of which she was at the Hotel Dieu five months. After this attack she had palpitations and a sense of suffocation, particularly in going up-stairs. She was not swelled ; for a fortnight past she feels fresh pains in the joints, but above all in the superior external part of the right thigh ; and the palpitations have increased. She has no fever, and none of the joints are red or swollen. The region of the heart gives a dull sound to the extent of five and a half inches transversally, and four inches longitudinally. In all this extent the heart can be felt beating strongly ; the apex, altogether directed to the left side, as if situated transversely, strikes the chest two or three inches farther out than in the normal state. In all the precordial region, in whatever position the patient may be placed, there is heard a strong file and saw sound which masks and absorbs the valvular flapping. This is heard over all the anterior part of the chest ; but without any sensible purring : pulse irregular, intermittent, little developed, but vibratory ; no devil sound in the carotids ; jugulars dilated ; lips blue.

Diagnosis.—*Enormous hypertrophy of the heart, with induration and thickness of the valves, consecutive on a rheumatic endocarditis or endo-pericarditis.*

This day, November 6th, the patient is still in the hospital.

CASE XV.—*September 29, 1835.*—A house-painter, aged 41 years, and married, of a delicate and lymphatic constitution, with light hair, subject to catarrh, and supposed to have an organic lesion of the heart. Examined on the 30th.—From his skeleton appearance, hectic fever, pulse 112 to 116, regular and moderately developed, mucous sputa, which filled his spitting-box, we presumed, at first sight, a tuberculous condition of the lungs. A cavernous sound in the right subclavian region, with obscure tinkling as of a cracked pot, and a semi-amphoric blowing, left no doubt of the existence of a vast pulmonary excavation ; at the posterior and superior part the sound was generally very obscure ; the shoulder-blades were raised like wings ; the chest narrow, compressed and elongated.

The organic affection of the heart was afterwards the object of our search.

What struck us at first was the size of the heart, whose beatings raised powerfully the precordium ; the apex was opposite the sixth intercostal space, which was widened, as well as the fifth, without evident arching of this region. The dull sound was 3 inches 4 lines in both directions. The impulsion was strong and regular ; a file or saw-sound existed in all the precordial region, and in all the

anterior part of the chest, masking almost entirely the double valvular flapping, and presenting its maximum of intensity at the level of the left orifices. There the first sound of the heart was replaced by a more prolonged file one, stronger than that which corresponded with the second; a scarcely perceptible interval separated these two abnormal sounds; the file sound seemed to pass so near the ear, and on a surface so extensive, that at first it would seem to be produced by the rubbing of the opposite laminæ of the pericardium, now become unequal and rough in consequence of false membranes organized on their surfaces. But a more careful exploration—the circumstance of the maximum of sound near the left orifices and its distant propagation, with complete absence of valvular flapping—induced me to announce that there existed a transformation of the left valves into a tendinous or fibro-cartilaginous ring, and therefore from this defect a friction during the passage of the blood, &c., &c.

This lesion was doubtless the consequence of an old endocarditis, and the great and general hypertrophy of the heart was also referrible to the same cause, as well as to the pericarditis, which was probably present at the same time.

Knowing from numerous observations that of all causes of pericarditis and endocarditis the most common is the rheumatic, I asked the patient if he ever had had pains in his joints: he replied that in 1813 he had experienced them, being then a soldier, and that moreover about twenty months since he also had them. As a consequence of this, he has been subject to the palpitations under which he now suffers. M. Buehel, who had the care of him at that time, confirmed his report, and regarded the affection as rheumatic or neuralgie. He had been bled at long intervals. From the region of the heart the pain extends to the shoulder, and all the left extremity as far as the fingers was painful; he considered them the same as the rheumatic ones which he experienced in 1813.

Here then is a new lesion of the heart called organic, following a rheumatism, complicated no doubt with endocarditis alone, or combined with pericarditis. As to the affection of the lungs it was consecutive, according to the patient's account, on a neglected cold which he had contracted about nine months before. Diarrhœa came on several times during the course of the tuberculous affection; but for a week past it had diminished.

The consumptive state, cadaverous paleness, extreme oppression, total loss of strength, and abundant expectoration, gave reason to look for speedy death. The absence of anasæra and ascites, of the blue or livid face, the regularity of the pulse and its relative fulness, induced us to believe that the passage of the blood through the heart was yet free, and that during repose the heart had but little to do with the dyspnœa. Emollient potion; digitalis, gr. vi.; soup; milk.

He went out October 2d.

CASE XVI.—*October 4, 1835.*—M. Bouvier requested me to see a

patient affected with a disease of the aorta. In the presence of many students I gave the following results of the examination. He is a house painter, aged 23 years, of a light yellowish complexion. At the middle of the sternum and precordial region there is an evident arching; the hand feels a well-defined vibratory trembling, having its maximum of intensity to the right of the sternum, two or three inches below the clavicle. I immediately said that a file or saw-sound ought to be the accompaniment of this, and, accordingly, auscultation enabled us to detect this very evidently; the maximum of intensity of the sound corresponded with the same point as that of the vibratory trembling; this sound was double and masked the valvular flapping. The hand is strongly raised by the beatings of the heart over a space much larger than in the normal state, which beatings are in other respects regular.

Percussion gives a dull sound, nine inches transversely, and five and a half vertically. On the right the dullness begins towards the middle of the subclavian region, extending down towards the union of the external part of the left side with the posterior region, where the apex of the heart, soft and rounded, gives a forcible shock. An evident arching exists over the region in which there is the dull sound, and becomes less at its circumference. The beatings of the heart are perceptible as if it were exposed to view; the shock is isochronous with the pulse, so that two persons, one counting the pulse and the other the shock of the heart, pronounce at the same moment one, two, three, &c.; the dilatation of the organ can be seen the moment after the shock.

Pulse 68 to 72; there is an evident rushing, a kind of agitation of the column of blood which passes the radial artery. No rushing sound in the large arteries which come off from the aorta, although there is a very decided vibratory trembling; the respiration is easy when the patient is at rest, but oppressive when he goes up stairs or takes exercise: no dropsy.

From the above signs we could not fail to perceive a very considerable organic lesion of the heart and aorta; hypertrophy of the heart with induration of the left valves; aneurismal dilatation of the aorta, &c. We inquired what preceding diseases he had suffered, and we were convinced that articular rheumatism was the chief. This young man in the presence of numerous witnesses then told us, that "from the age of five to fifteen years, every winter he was impotent; the hands, the feet, knees, were swollen and painful."

It was in consequence of the rheumatic affections that palpitations came on, and the other symptoms of his disease. About a year since he had lead colic. This one is similar to CASE X. reported above.

This patient again came under our notice October 19, 1835. An attentive auscultation showed, in addition to what has been related, that rubbing during the systole produced a file, saw, or even a curry-comb sound, whilst the diastole gave rise to a sound like a forge bellows, very clear and perfect. Pulse regular, 68 to 72, vibratory, with

a rushing of a small volume in relation to the heart ; the rushing in the carotids, the subclavians, and in the portion of the aorta which corresponds to the hollow of the sternum, is a true, vibratory trembling, similar to that of an aneurismal tumour.

III.

Cases of Mild Articular Rheumatism without Fever.

CASE XVII.—*September 1835.*—A man with mild, apyretic, articular rheumatism ; nothing morbid discoverable in the heart. We did not think it necessary to have recourse to our plan of blood-letting, on account of the mild nature of the case, and we tried the tinct. colch. We did not meet with any encouraging result. Though mild, this case was prolonged far beyond the time at which the violent cases of rheumatism treated by repeated bleedings generally disappear.

CASE XVIII.—*August 29, 1835.*—A woman, aged 40, of a robust frame, with rheumatism of the feet and knees ; apyretic ; no indication of disease of heart. During the first twelve days she used the colchicum, and a strict diet was observed ; no amelioration.

September 9.—The two knees were more painful and swollen, especially the right ; at the internal part of which there was a distinct fluctuation ; its circumference was fifteen and a half inches ; that of the left fourteen and a half. Six bowls of blood were taken by cups on each knee, and then compresses with mercurial cerate directed ; diet.

10th.—Pains calmed ; right knee fourteen and a half inches, left fourteen in circumference.

11th.—No trace of fluctuation ; right knee fourteen inches.

13th.—The knees are completely cured ; food increased. Patient left quite well October 1st.

CASE XIX.—*October 2, 1835.*—A young man, a wine seller, after exposure to cold, has been fifteen days past labouring under rheumatism, shifting from one joint to another, and in different parts of the chest. No evident swelling of the joints ; no fever ; the heart healthy.

CASE XX.—*October 7, 1835.*—A pork butcher, aged 39 ; pains in the limbs, without swelling of joints, apyretic ; heart healthy. In 1823 he had a previous attack of eighteen months' duration ; his physician treated it by wine poultices on the joints.

CHAPTER II.

Symptoms, Progress, Intensity, Duration, and Termination of Acute Articular Rheumatism.

It is not necessary to insist at any great length on the various points of this chapter.

I. Pain, heat, redness, tumefaction, with or without fluctuation

of the affected joints—such are the local symptoms of acute articular rheumatism. The subcutaneous veins which run over the joints are more developed than in the healthy state, and are so much the more apparent, as the skin, more stretched, is thin and shining. The pain is increased by touching and by the slightest motion, and hence that remarkable position of immobility, which the rheumatic affection when violent compels the patient to take. Fluctuation, a sign of articular effusion, can only be well discovered in the large joints and especially in the knees: where it is present there are two prominences on the sides of the rotula, which is raised, and it ceases to be in contact with the articular surfaces of the femur and tibia. This is best appreciated by a tape divided into inches and lines to measure by.

II. Violent fever, the more so, other circumstances being the same, from a greater number of joints being attacked, accompanies the above local symptoms. The pulse is strong, full, hard, vibratory, and generally 100 to 120 in a minute. Heat considerable, with abundant and somewhat clammy sweats, of a stale, acescent and nauseating odour, which bathes the whole body. After the sweats have continued some days, the skin, particularly where this fluid has been the most abundant, is covered with myriads of *sudamina*, often accompanied with a miliary eruption and red spots, something like roseola. Stoll remarked that the rheumatic fever was accompanied by a miliary eruption, white, red, or mixed.* Loss of appetite, thirst ordinarily great, sleeplessness more or less obstinate, owing to the intensity of the pains and divers complications, are symptoms which we will just mention cursorily.

The crassamentum of the blood is firm, glutinous, and is covered by a buffy coat, which is soon organized into a true false membrane, thick, dense, and resisting, and analogous to chamois leather. It floats in the midst of a clear yellow or green serum.† The edges of the buffy crassamentum were inverted, and had the form of a mushroom. Sydenham, and particularly Stoll, described the rheumatic sisy coat.‡ The urine becomes muddy a short time after its evacuation, and so thick that it has the appearance of new or sweet wine, (like the urine of mares;) it reddens litmus paper. Generally, the fever of acute articular rheumatism is of greater intensity than that of other acute affections, which we can easily conceive at the present day, since we have a knowledge of the almost constant coincidence of very intense articular inflammation with that of the centre of the circulation, to which is sometimes joined that of the vascular system itself.

* See his *Médecine Pratique*, Vol. i; April 1777.

† No observer had as yet taken notice of the buffy coat except in the blood taken by the lancet. We have also seen it very often in that taken by cups.

‡ “In the febrile rheumatism,” said the physician of Vienna, (Stoll,) “the buffy coat of the blood was always very inflammatory, and so thick that but a very small part of the red could be seen. This buffy coat was less considerable and less thick in all the other inflammatory affections, no matter how severe they were.” This remark of Stoll is perfectly correct.

III. The diffusion of articular rheumatism, or its dissemination over the blood-vessels, the heart, and other viscera, and the external and internal nerves, furnishes a crowd of phenomena upon which, for want of room, I cannot dilate. I have however explained, above, the signs of rheumatic pericarditis and endocarditis.

IV. Articular rheumatism, considered by itself and apart from various complications, shows itself with great variety, both in extent and intensity. Thus, as to extent, it sometimes attacks but a few joints, such as the foot, hand or knee : at others, on the contrary, it invades all the joints. As to intensity, it is sometimes so slight as to be dissipated in twenty-four hours ; then, again, so severe as to resist whole months, unless the most energetic measures are used.

Whilst the acute rheumatism easily leaves one or more joints, it generally does so to invade others, whatever may be the mechanism which presides over this displacement. Generally, all other conditions being the same, the *fixity* and the obstinacy of acute articular rheumatism are in the inverse ratio of the number of joints attacked. The mobility of acute articular rheumatism is a phenomenon which has not as yet been sufficiently analysed. We must not think that at every degree it can be displaced, or rather dissipated easily and rapidly. Should there be, for example, a very large tumefaction of the knee, with great effusion into the joint, &c., you will soon discover whether it is most frequently by metastasis or by quick and sudden resolution that it will terminate. Two very different things have here been confounded. It is very true that, even in the cases mentioned, the pain of the joint may promptly disappear with or without pain arising in any other joint ; but it is not always so with the articular effusion, which then, however, constitutes the essential element of the disease.* The pain is but a kind of neuralgia, symptomatic of the articular affection, like the stitch of the side in pleurisy ; and in both cases this symptom, common as it is, constitutes nevertheless an accidental accompaniment rather than an essential character of the disease ; since pleurisy can exist, as well as articular rheumatism, without pain, the latter disease being as it were but a pleurisy of the synovial membranes. To say that an articular rheumatism with effusion can always in this manner be displaced in the twinkling of an eye, would be to suppose that pericarditis with effusion could also always disappear in the same manner ; an hypothesis which attentive observation will never admit.

To conclude :—An articular rheumatism which does not pass that degree, which I readily denominate simple *fluxion*, analogous to what happens in certain facial neuralgias, may present a great readiness to change its location ; but it is no longer the case with one of a higher grade, with a tendency to suppuration, or which has actually termi-

* “Dolor adest atrox, nunc in hoc, nunc in illo artu, in carpis, humeris et genibus præsertim, vicissim hos relinquens et illos occupans, *rubore et tumore in parte, quam postremum affecit, adhuc residuis.*”—Sydenham, i. 498.

nated in a purulent or sero-purulent effusion. This last, if left to itself never disappears but within a certain period, but the pain with which it first came on may disappear long before the absorption of the pleuritic effusion. Thus then in the phlegmasiæ of membranes and of parenchymæ, the nervous element should not be considered as the fundamental, but rather the accidental accessory fact; for we repeat it, this can exist without them and *vice versâ*. We see, notwithstanding, mistakes made every day by physicians, who confound the one with the other.*

V. By the acknowledgment of every observer who has heretofore traced the history of acute articular rheumatism, the duration of this disease is very long; the medium term being from forty to fifty days.† But experience proves in the clearest manner that the duration of articular rheumatism depends on the plan of treatment; of course this medium duration is only under the conditions of a determinate treatment, and ceases under other therapeutic conditions. Supported by more than one hundred observations collected with extreme care and in the presence of a large number of students, and of many physicians, I can assert, that under the plan of treatment which I now employ, the duration of rheumatism has diminished one half, scarcely ever exceeding one or two weeks. Let it not be alleged that we have only met with mild cases: they have been as violent as those which I had formerly seen last forty or fifty days, and almost always coincided, as I formerly mentioned, with pericarditis, endocarditis, pleuritis, &c. But, again, there is no doubt in this matter—it has been demonstrated with the most mathematical precision, that the sole cause of the less duration of our cases of rheumatism depends on the plan of treatment originating with me, and of which I shall speak presently.

A very remarkable fact which had already fixed the attention of our predecessors, but of which they knew not the true cause, is the per-

* See a memoir published by me in August 1834, in the *Journal Hebdomadaire*, under the following title: "*Quelques reflexions tendant à prouver que la douleur ne doit pas être placée parmi les symptômes essentiels de l'inflammation.*"

† The duration of acute rheumatism, almost always very long, varies from fifteen days to two or three months; it has in some rare cases disappeared in three or four days, and in others lasted four to five months. Its medium duration is forty days. (*Diction. de Med. et Chir. Pratiques—Arthrite*, par M. Roche.)

M. Chomel has strongly insisted on the long duration of the disease, but he seems to have in some measure modified his opinion according to the times. In the account in the *Lancette Française*, Sept. 10, 1833, 14th 1834, and October 1, 1835, of his Clinic, I find the following:

"The duration of rheumatism may be of some minutes or of many months. Rheumatism with fever may last twenty-three days at least, and fifty days at most. The duration of general articular rheumatism, according to the returns of the cases of twenty-nine of my patients, has been only one in five days; in all the others it was prolonged from three weeks to three months."

In the essay on rheumatism by the same author, published in 1813, we read: "The duration of acute rheumatism, when mild, rarely extends beyond the second or third week, and when intense beyond the sixth."

sistence of the fever long after the joints have recovered their healthy state; this is what in the majority of cases in some measure indefinitely protracts the disease. We have been happy enough to discover the most satisfactory explanation of this rheumatic fever, which some wished to make essential. In a rheumatic inflammation of the heart, blood-vessels, pleura, &c., we behold the true cause; and we may add, parenthetically, that these inflammations are almost always completely indolent, which prevented them up to the present time from being detected. A new proof this, that pain is not inherent and essential to the inflammation; a new proof, also, that rheumatic inflammation of serous or sero-fibrous tissues is not so mobile in its nature as is so complacently repeated; since in the cases we have pointed out it is so fixed and rooted that it keeps up a fever of many weeks. It is true that in this case the phlegmasia is not seated in the joints; but a question of place is not a question of nature.

The age of our patients did not seem to modify very sensibly the duration of the rheumatism; other practitioners have thought otherwise. If confidence can be placed in a work recently published, the following is the opinion of M. Chomel on its duration as modified by age: "M. Chomel observed that from fifteen to twenty years of age, rheumatism generally terminates before the fortieth day; and that from thirty to thirty-five years, after that term, in the proportion of one to two. In those of forty-five years, the termination takes place after the fortieth day, in the proportion of four to one."

VI. The termination of acute articular rheumatism, although often of some duration, is rarely fatal. But yet endocarditis, pericarditis, pleuritis, with which it coincides, sometimes produce death. If we may judge by the cases lately published in divers journals, and particularly in the *Lancette Française*, the mortality is more considerable than we had hitherto supposed.

Another termination of rheumatism consists in its passing into a chronic form; and not only articular rheumatism but likewise the rheumatism of the heart, or of some other viscus, may and does, in truth, but too often assume the chronic form; and hence incurable organic lesions.

CHAPTER III.

Anatomical Character and Seat of Acute Articular Rheumatism.

THE pathological anatomy of acute articular rheumatism is not the most advanced portion of its history; the reason is that this disease rarely terminates in death, even when it is complicated, and, also, that among those cases in which death takes place in consequence of complications, some are met with, in which, at the moment of

death, the joints are not diseased. Let us also add that the joints have not always been examined in the rheumatic cases terminated by a violent complication.

Does acute articular rheumatism give rise to an effusion of pus or of purulent synovia in the articular cavities, just as pericarditis or pleuritis determines a collection of pus or of sero-purulent liquid or pseudo-serous membranes in the pleura and pericardium? It has been denied in these latter times, and consistently if, as it has been taught, acute articular rheumatism is not an inflammation, an opinion which would be dispelled forever, in case suppuration in the joints attacked by rheumatism were demonstrated.* What, forsooth, has been said to those who have brought forward cases of articular rheumatism terminating in suppuration? The reply is easily foreseen, to wit—that the disease was not an acute articular rheumatism.

The first who to my knowledge has pointed out the termination of rheumatism by suppuration, is Stoll, he who is invoked by some writers of the day as authority against the ideas which we are now advancing. When speaking of his third kind of rheumatism, the most violent of all, he says: "In some patients these rheumatisms after having tormented them a long time change into suppuration. These fluxions, adds he, were of a very erysipelatous caustic nature; when touched even tenderly with the finger the patient cried out."

It is a pity that Stoll did not give more extended views on this point. How and where did he discover suppuration? Was it truly in articular rheumatism that this termination took place? The continuation of the passage cited would lead us to believe so. "I have treated (Stoll speaks) two young girls, one of whom had the hand, the other the foot, affected with the same kind of rheumatism; my treatment though very multifarious and diversified could not overcome the obstinate character of the disease."

We have yet another quotation to make, which tends to prove that he spoke in fact of an articular rheumatism, and which at the same time leaves no doubt that Stoll assimilated this rheumatism under a certain form to a chronic phlegmasia. "The second kind was that obstinate and chronic rheumatism of the extremities, first with fever and a swelling of the affected part, which, after the fever was dissipated, remained a long time painful. If it was not properly managed the joints remained painful for a very long time: they were left less fit for movement, being stiff, full of nodes, swollen, and deformed.

"We have met with a dysentery similar to this rheumatism, rebellious, like it, to the known laws of treatment, and following precisely the progress of this obstinate fluxion of the joints. The intestinal

* "We have seen that pus has never yet been found in the joints, or rather when that was the case its presence was owing to other causes. Now an inflammation which probably never terminates by suppuration, has not a true inflammatory nature." (Lessons of M. Chomel in the *Lancette Française*, Sept. 4, 1834.) What is an inflammation that has not a true inflammatory nature?

pains lasted a long time. Different measures were tried ; the patients perished either from dropsy or consumption or continual dejections of serum or *chymus* ; the intestines were then found to be, especially the large ones, much thickened and indurated, but yet not ulcerated.

“Protracted rheumatism in these cases, produced in the intestines what I have said was produced in the joints by the same disease, which leaves them swollen, full of lumps, stiff, and unfit for movement.”*

Let us pass on to more positive facts.

M. Chomel in his treatise on rheumatism, cites cases in which pus has been found in the joints of individuals who have died during the course of this malady, as well as other unequivocal signs of inflammation of the articular synovial membranes. He only concludes from these appearances that the symptoms which accompany this inflammation resemble much those of rheumatism. Here are the words themselves of M. Chomel :

“Can rheumatism have its seat in the synovial membranes ? In a patient who died at La Charité, the two scapulo-humeral articulations had been successively affected with severe pains and swelling. In two others, observed at the Hotel Dieu, all the moveable articulations became painful and swollen with impossibility to execute any movement. After death the synovial membranes in all were found inflamed, with purulent effusions in the articular cavities. What should we deduce from these facts ? that those membranes are liable to become inflamed, and that the symptoms which accompany this inflammation resemble much those of rheumatism. But what connexion is there between the two diseases ? None other but the simple contiguity of affected parts.”†

I have heard that M. Moreau, while *interne* at the Hotel Dieu, had found true pus, like that of a phlegmon, in the joints of a subject dead from rheumatism. M. Piorry, according to some Theses on articular rheumatism, also once or twice discovered pus in the joints. If my memory does not deceive me, I think I have collected three cases of rheumatic suppuration of the joints ; but on searching somewhat hastily in my note book I have only found the two following :

“*April* 11, 1828.—We opened, at La Charité, a young woman who had been affected with a very acute articular rheumatism, during the course of which a pleurisy supervened. This pleurisy manifested itself, perhaps, at the same time as the rheumatism, but this last having absorbed doubtless all the attention of the physician and attendants, the pleurisy was not recognized till the body was opened.

“She had been but fifteen days at the hospital.

“The left tibio-femoral articulation was red and somewhat dry ; the condyles of the femur were eroded ; there was no pus ; the right tibio-femoral articulation was full of true pus mixed with synovia ;

* Practical Medicine, iii, 241.

† Essay on Rheumatism, p. 14.

the congestion of blood was scarcely marked ; during her last days the patient suffered hardly any in this joint. One of the radio-carpal joints was red, like the left tibio-femoral, and had evidently been inflamed. The portion of the crural vein the nearest to the joint which was full of pus, contained purulent matter mixed with a red sanies. In all the rest of its course this vessel was obliterated by concrete blood. At several points pus was detected ; the sides of the vein were thickened, especially near the knee ; its internal membrane was of a violet red ; the fibrinous or fibrino-purulent concretion was easily detached. The crural artery was pervious—the nerve which accompanies these vessels was more red than in the healthy state, and appeared to us perceptibly thicker.”

Among the five cases of articular rheumatism, reported in our clinic from March 10 to August 30, 1832 one was mortal, of which the following is a short note.

“The patient was attacked during his stay at the hospital with a violent erysipelas of the fore-arm and left hand, with burning fever and cerebral disturbance ; he died on the fourth day.* Upon inspection of the body we found several enormous collections of pus in the teguments of the arm and hand ; and the veins of the member, as well as many others, were inflamed. Most of the joints contained a synovia clouded and thick, resembling in some parts the nature of pus.”

M. Raciborski has published the following fact :—“Villamé (Theresa), aged 27 years, a cook, exposed to moisture and atmospheric changes, pregnant five months, was attacked, January 27th, with pains in the hips followed by a chill. The knees, feet, and wrists were successively attacked. February 1.—Tumefaction, with heat and redness in almost all the joints, and dropsy of the left knee.

“Several bleedings were prescribed in successive days, but two only were practised, and these at several days’ interval. The patient remained in the same state until March 6th, when she brought forth a dead child. Metro-peritonitis came on, followed by death on the 9th. On inspection of the body, the left tibio-femoral articulation presented externally a most remarkable tumefaction. When opened, there flowed out a great quantity of pus of a well-marked nature, and there remained about two table-spoonsful ; the cartilages were soft ; and the fibro-cartilages destroyed at several spots. The capsule itself presented a deep red colour, and on its surface were false membranes. Analogous alterations were found to a greater or less degree in the two tibio-tarsal joints. The interior of the vagina contained a red serosity mingled with pus. The internal surface of the

* It is evident that articular rheumatism did not kill this man ; but it is not impossible that the phlegmonous inflammation of the limb and the phlebitis were produced by the same cause that gave rise to the articular rheumatism. At this time I employed blood-letting pretty freely, without, however, having as yet made use of the plan I now follow. The patient might perhaps have been saved if this had been put in practice. We must nevertheless allow that the cerebral disturbance constituted a most aggravating circumstance.

womb was somewhat softened, but no pus in its substance, nor was there any in its veins nor in the vena cava.”*

In the article devoted to the puerperal rheumatism of the muscles and synovial membranes, M. Cruveilhier has reported three cases terminating in suppuration. He also found the articular surfaces eroded. It is very true, and the fact is not omitted by M. Cruveilhier, that in females lately delivered rheumatic articular inflammation, like all other inflammations in general, has a tendency to suppuration, which is not observed to the same degree without the puerperal condition. But that is no reason why the nature of the disease should not be essentially the same. In order to get rid of these embarrassing facts the most simple course has been taken. It has been denied, *à posteriori*, that the existence of rheumatism, in rheumatic patients recently delivered, whose articulations contained pus, was rheumatism.

In the first case the tibio-tarsal and all the tarsal joints, and the synovial sheaths of the tendons of the common flexor muscles, the common flexor, and the posterior muscles, were filled with pus.

In the second case suppuration had taken place in the knee-joint, and in the free cellular tissue of the thigh and leg.

In the third case collections of pus were found in the joint of the wrist, in those of the instep, and in the fleshy part of the leg.†

In the last *concoeurs* for aggregation, one of the competitors cited the case of acute articular rheumatism in the wards of M. Husson, which terminated in death. Pus was found in most of the joints, and even in that of the process of the second vertebra with the atlas.

However few may be the cases of which we have a knowledge, they are enough to prove that the termination by suppuration, or by purulent effusion, is not wanting in acute articular rheumatism.

These facts prove at the same time that the true and chief seat of this disease is not in the ligaments, as Pinel, Chomel, and others teach. Whatever this last author may have said, the serous or synovial membranes of the joints are the real seat of the acute articular rheumatism; the ligamentous tissues are affected but accessorially, as well as many other neighbouring parts, such as the blood-vessels, the external cellular tissue, &c.

To distinguish rheumatism of the synovial tissues from that of other parts which assist in the formation of the joints, it would be well perhaps to give it the appellation of rheumatic synovitis.

Were we treating of acute muscular rheumatism, it would be easy to show cases of suppuration of the inter-muscular cellular tissue; we have histories in detail of such rheumatismal abscesses. Professor Roux has observed a great many. About a year ago I sent to him a young man of a very vigorous frame who was attached to the navy, and who on account of rheumatism had an enormous suppura-

* Journal Hebdomidaire, April 12, 1834.

† Cruveilhier, Anat. Path. du corps humain, 17 liv.

tion in the cellular tissue of the left pectoral muscle, which at last destroyed him.

M. Cruveilhier in his *Pathological Anatomy*, after having said that the puerperal rheumatism, as well as the inflammatory rheumatism, proceeding from any other cause, may exclusively affect the cellular tissue which lays round each muscle like a cellular atmosphere, the muscles being altogether untouched, reports the following case :*—

“A young man while skating on the canal of Oureq, was seized with cold, and felt a sharp pain through all the thigh : he supposed it a common rheumatic pain. Very soon, unequivocal traces of inflammation were evident ; the patient’s strength sank rapidly with extreme frequency of the pulse ; death took place in one month. On inspection there was found in the cellular tissue of the whole thigh marks of suppuration ; the muscles were as if dissected ; the bone, deprived of periosteum, was in the middle of this vast denudation.”

After having examined some cases of rheumatism ending in suppuration, M. Chomel concludes, that this termination is not yet established on any fact. “I do not pretend, however,” says he, “that it cannot be liable to such a termination.”†

M. Chomel, in his *Essay*, begins by declaring that pathological anatomy has not yet taught us any thing certain as to nervous affections, fevers, or rheumatism. He concludes from the symptoms of rheumatism that it has its seat in the muscular and fibrous tissue, but speaks with great reserve of its seat in the latter.

“The expression of articular rheumatism,” says M. Chomel, “was preferable to that of fibrous rheumatism which has been substituted for it. In indicating that its seat was in a joint, it presented no false or doubtful idea, and in this sense alone I shall employ it.”‡

CHAPTER IV.

Determining Causes of Acute Articular Rheumatism.

THERE certainly is a predisposition to acute articular rheumatism as there is to many other diseases. My present object is not to insist on this point, but merely to state it incidentally.

As to the determining causes, they may be reduced, on final analysis, to one alone : viz. the impression of cold, especially when humid. Its action is the more powerful since it is displayed when the

* The puerperal state is not the cause of rheumatism. It only constitutes a predisposition to it, and favours its termination in suppuration. But as we shall soon show, the only determining cause of true acute rheumatism is a sudden chill, succeeding a more or less abundant perspiration, called by the people checked sweat.

† *Essay on Rheumatism.*

‡ *Ibid.*

body is in a profuse perspiration. Muscular fatigue also forms a condition eminently favourable to the production of this disease. The action of cold after fatigue has been well marked by Sydenham: *Hæc ut plurimum occasione rheumatismus nascitur, æger sc. sive exercitio aliquo vehementiori, sive aliquo modo excalesfactus mox repentimum frigus admisit.*

This cause is so evident that it is inconceivable how it can be doubted. A very singular fact is, that the same author who denies the influence of cold in the production of articular rheumatism, allows it as regards muscular rheumatism.*

Although I was fully convinced, on the authority of preceding observers and by facts which I had long since collected, of the influence of cold in the production of articular rheumatism, still I wished, by new observations, to ascertain what we should think of the contrary opinion. Fifty subjects of acute articular rheumatism, interrogated with this view during the present year, have for the most part formally declared to me, in the presence of students, that their disease had been occasioned (to use Sydenham's expression) by alternations of heat and cold. Some it is true said they knew not the cause; but upon questioning them it was easy to discover that all, or almost all had been exposed to the above mentioned cause. Besides, the general rule always covers the exception.

If the above were true, we should not wonder, other circumstances being the same, that rheumatism affects those in preference who, by their labour and profession, undergo alternations of heat and cold, as wine-sellers, soldiers, washer-women, &c. We can, also, understand why acute articular rheumatism is chiefly rife during the seasons of great changes of heat and cold.

A special agent, a rheumatic virus, a rheumatic humour, I well know has been created for rheumatism as well as for many other diseases. But it is a most gratuitous hypothesis, and it is painful to find such an excellent observer as Stoll entertain, in some parts of his work, this opinion. This illustrious physician, we all know, has made his gastric or saburral state, his polycholia, play an important part in the production of certain rheumatisms, and hence, even as we shall show farther on, his unfortunate division of this disease into an inflammatory variety, and into that without inflammation. However imposing may be an opinion supported by the illustrious name of Stoll, we must not, however, sacrifice observation to it; and such would be the case were we to admit all which that great practitioner of Vienna has written touching the influence of the bile on the production of rheumatism, as also of pleurisy, pneumonia, and of most acute diseases.† We must not idolize our great

* "The influence of cold is powerful in the production of muscular rheumatism; but for articular rheumatism this cause is nearly null."—*Clinique de M. Chomel, Lancette Française, October 1, 1835.*

† In various places of his Practical Medicine, Stoll very explicitly mentions the influence of alternations of heat and cold in the production of rheumatism:

predecessors. It is by following in their footsteps, and not by a servile and superstitious adoration, that we must honour superior genius.

CHAPTER V.

Of the Nature of Acute Articular Rheumatism.

I.

WHEN a certain number of cases of acute articular rheumatism have been well observed under all aspects, one cannot but be astonished at the long disputes respecting the nature of this affection. We feel, peculiarly, surprise that one of the most celebrated practitioners, after having in vain endeavoured to place rheumatism in one of the best understood nosological classes, should be obliged to place it between the phlegmasiæ and hemorrhagies.

"Rheumatism cannot be better placed," says Chomel, "than at the end of the class of phlegmasiæ, with which it has more analogy than with any other affection, and immediately before that of hemorrhagies, with which it also has intimate connexion, especially by its frequent return and mobility. It exhibits a great analogy to nervous diseases in the absence of all kind of organic lesion in the affected parts. It presents frequently inflammatory phenomena, but it is not in the parts affected with rheumatism that these phenomena take place."*

Nevertheless it must be acknowledged that good observers, in all times, have recognized the inflammatory character of acute articular rheumatism. But even whilst admitting this, as it offers phases

for example, p. 241., vol. iii, he says :—We have seen men affected with rheumatism from exposing themselves to cold when in a state of sweat. At page 218, in speaking of rheumatismal dysentery, or of intestinal rheumatism, he declares, that he never saw this disease without the patient having exposed himself to cold whilst yet sweating.

* Essay, p. 66, 67.

There are some variations in this opinion. In his published lectures, M. Chomel says :—"After having compared rheumatism with all known diseases, we are forced to recognize that it forms a group, a family as naturally as intermittent fever."—(*Lancette Française*, September 1834.) In this article an attempt is made to detail the differences between rheumatism and inflammation, which last it is said has but one form; and in those cases in which rheumatism simulates the inflammatory form, it is said to resemble variola!!! Since the fever persists after all the articulations are free, it has been concluded that articular rheumatism does not reside in the articulations; and upon this point not a single word is said about rheumatic inflammations of the pericardium, endocardium, pleura, &c., which keep up this fever and produce those curious phenomena which are never seen in inflammation!

which are not met with in other inflammations, they have found themselves obliged to assume a specific character for the disease; in consequence of which some have classed it with catarrh, others with fluxions. But as in the continual advancement of our science, these catarrhs and fluxions, allied as they are to acute articular rheumatism, have in these latter times been merged and lost in the vast class of phlegmasiæ, properly so called, it follows that rheumatism itself should be similarly disposed of.

It is not, in truth, without a feeling of professional shame that one is obliged at this time to prove the inflammatory nature of acute articular rheumatism, above all when at its maximum of intensity, since so many facts have exhibited its coincidence with pericarditis and endocarditis. Can any one, indeed, refuse the title of phlegmasia to a disease which at its height is characterized, in reference to its local symptoms, by pain, heat, swelling, and redness; and with respect to its general state, by a most violent fever; to a disease which, in those unfortunate cases that end in death, is accompanied by suppuration of the joints; which is developed under all the same atmospheric conditions with the other admitted inflammations, such as angina, bronchitis, pleuritis, pneumonia, pericarditis, &c.;* which, as we shall soon show, yields like these latter to well-timed blood-lettings, and is protracted under all other methods;† and in which, in fine, the blood abstracted offers the type of the inflammatory buffy coat!

It is very true that articular rheumatism not infrequently passes from one joint to another in a very rapid manner, returns to that which it had left, and again leaves it for another. Does this character of

* No one can now aver that the causes of acute articular rheumatism are unknown. Can it be said that great alternations of heat and cold, above all after painful muscular exercises, should have nothing to do in the development of rheumatism! To give an affirmative answer, would be to deny light and motion. But admitting that, in fact, the causes of acute articular rheumatism are entirely unknown, physicians whom we refuse assimilate this affection to pneumonia, pleuritis, pericarditis; since they profess that the causes of these affections are equally unknown, notwithstanding the atmospheric changes above noted exercise on their production, as on that of acute articular rheumatism, the most marked and the most fatal influence. The etiological doctrine which we unfold respecting articular rheumatism, pneumonia, pleuritis, &c., is altogether conformable with that of Sydenham. What says this oracle of observation regarding diseases which he calls intercurrent fevers, such as pleuritis, angina, peripneumonia, &c.:—"Causa evidens *externa* (horum morborum) inde petenda est, quod quis scilicet vel prematurus vestes abjecerit; vel ab exercitio incalescens se frigori incautus exposuerit; et sane existimo plures modo jam designato, quam *peste*, *gladio*, atque *fame* simul omnibus, *perire*."

† A proposition, to those whom we combat, harsh and heretical. These persons teach that blood-lettings do not arrest acute articular rheumatism in its progress, do not sensibly abridge its duration; in a word, do not cure it. I agree very willingly that blood-lettings, practised after a certain fashion, are as powerless as they declare; but what I affirm is, upon the most conclusive experience, that reiterated blood-lettings, as we employ them, cure acute articular rheumatism, pleurisy, &c. I call to witness on these points the conscientious depositions of many observers to our plan of treatment!

mobility, or of ambulation of articular rheumatism, justly pointed out by all observers, constitute an irreconcilable contradiction with its inflammatory nature which we have recognized? If so, we must also erase from the list of phlegmasiæ certain erysipelas, anginas, catarrhs—diseases which in a mild form may disappear in the space of twenty-four hours, and even less.

There are, besides, peculiar conditions to be noticed for the sudden displacement and disappearance of articular rheumatism; the principal of which are the following: 1. The mildness of the disease and its diffusion over many joints at its onset: circumstances which are to a certain point correlative: for it seems to lose in strength what it gains in extent. 2. The influence of the external cause which produced the primitive disease, acting on a part till then intact; and in this case it is not, as has been said, the rheumatism of the diseased joint which is transferred to the healthy one—but this last being strongly attacked the other becomes more or less easy, conformably with the great law of Hippocrates, *duobus doloribus simul abortis, non in eodem loco, vehementior obscurat alterum*. 3. In fine, the general rheumatic diathesis, which a general chill, succeeded by heat and more or less abundant sweats must necessarily produce, notwithstanding that this cause determined at first an inflammatory fluxion only on some of the joints.

I make use designedly of the expression inflammatory fluxion, in order to approximate the shade or the degree of the rheumatism which we are at present studying, to those fluxions of the face which sometimes accompany the toothache or caries of the teeth. Will it be said that these last are not inflammatory, because they cease rapidly so soon as the violent pain which constitutes the predominant symptom has disappeared? To show this negation in its true light, it is sufficient to remark, that in the cases in which this fluxion is carried to a very high degree it terminates in a true abscess. Let us beware, we cannot too often repeat, not to assume differences in the intensity of one and the same malady, for differences in its nature and essence.

I have said above, that a knowledge of the great fact of the coincidence of pericarditis and endocarditis with acute articular rheumatism, is an argument in favour of its inflammatory nature. What in fact is pericarditis and endocarditis if not a true rheumatism of the sero-fibrous tissue of the heart?—and, on the other hand, what is acute articular rheumatism if not an inflammation, and as it were, an endocarditis or a pericarditis of the sero-fibrous tissue of the articulations?

We hear it urged, again and again, that we are acquainted with inflammation of the joints from an external cause, or *traumatic*, or *surgical arthritis*; and that as the latter is not like acute articular rheumatism, therefore this last is not an arthritis. In truth such objections do not merit the honor of refutation.

It may be alleged that we are acquainted with traumatic or surgical arthritis, and that its phenomena are unlike rheumatism. It would have availed more, it seems to me, to have said that we are acquainted with

non-traumatic or *medical* arthritis, and that it bears no resemblance to the affection called acute articular rheumatism. We affirm that acute articular rheumatism bears such an analogy to medical arthritis, or that produced by a cause not traumatic, that it is impossible to adduce a single example of the latter without confounding it with the former. Now, of all the serous membranes is it possible that the synovial should be the only ones which never suffer a medical inflammation, or that arising from an internal cause?

Because pleurisy, pneumonia, pericarditis, which are developed under the influence of the same causes as acute articular rheumatism, do not conform precisely with traumatic pericarditis, pleuritis, or pneumonia, shall we therefore conclude that the first are not inflammatory. Undoubtedly the kind of cause which produces a phlegmasia, impresses upon it a peculiar stamp, a form, a progress, which do not belong to other phlegmasiæ determined by different causes; and these peculiarities should be strictly considered; but that does not prevent its nature from being essentially the same, nor the inflammatory type from being evident in every case, to truly observing minds. Is it to be expected, for example, that an individual suddenly attacked, after an alternation of heat and cold, with an acute articular rheumatism spread over a great many different parts, should experience precisely the same symptoms as another affected by an inflammation of only one joint, produced by a blow, a fall, or some cause termed local? Certainly it is impossible for any physician with common medical knowledge to maintain such a doctrine. Every cause which attacks at the same time several parts of the animal economy, and becomes evident and general, may, at the same time that it excites true inflammation in some points, only produce in others simple excitement, and call into action this *general diathesis*, which, without being a well characterized inflammation, is not the less a state which really has a tendency to pass on to inflammation, or, as it were, an inflammation in the formative or rudimentary state. The circulatory system is certainly the ordinary seat of this general inflammatory diathesis, which, as I think I have elsewhere proved, is blended with the febrile state. It appears that the new facts, which I have collected on acute articular rheumatism, serve expressly to support the doctrine here laid down. In what case can we find a fever called inflammatory, a synocha, more violent or better characterized than that in acute articular rheumatism—a fever which continues often to a high degree after the cessation of the articular inflammations? Now is it not well worthy of attention, that endocarditis, phlebitis, and sometimes arteritis, are met with in patients labouring under acute articular rheumatism?

However this may be, it is clear that the numerous inflammations of joints produced by a *rheumatic* cause, should be less deep seated than traumatic inflammation of one of these joints; that they consequently should be less adherent to the affected parts, should be displaced more easily, be reproduced under the renewed influence of the cause, as

the traumatic arthritis would be reproduced likewise if a fresh cause should act with sufficient force. But there is this difference, that, in the latter case, there does not exist the general inflammatory diathesis which favors the development of a local inflammation in the points upon which any *irritating* cause whatever can act. Let us add, that these traumatic arthritic affections do not coincide, as the violent rheumatic ones do, with pericarditis and acute endocarditis, and that a knowledge of this last circumstance really gives us the key to many phenomena which till now have singularly embarrassed observers. So that, this rheumatic or arthritic fever being present, whilst the rheumatism itself is absent, upon which some based their theory of the non-inflammatory essence of the disease, is precisely one of the most decisive proofs in favor of the contrary theory. In fact, the cause which keeps up this fever is ordinarily an inflammation of the pericardium or endocardium, an inflammation which, I repeat it, is but a rheumatism of these sero-fibrous tissues.

Thus then the peculiarities which acute articular rheumatism presents in its course, do not prevent us from classing it in the rank of phlegmasiæ. My learned colleague and friend, M. Roche, has well exhibited this point, in his excellent article *Arthritis* of the *Dictionnaire de Médecine et de Chirurgie Pratiques*. But let us see how he distinguishes between traumatic and rheumatic arthritis. "One cannot doubt," says he, "that traumatic arthritis consists in an inflammation, pure and simple, of the serous and fibrous tissues which go to form the joint; and it is conceivable that this inflammation should remain local, like its cause; that it should be fixed, continued, regular, and not subject to relapse. It appears certain to us that in rheumatism, besides the inflammation of the joints, there exists an alteration of the blood, which, in part even controls the other morbid state."

What then is this alteration of the blood superadded to the articular inflammation, which in a degree controls this latter, and which specially characterises articular rheumatism? It is to be regretted that M. Roche has not more amply explained the matter. If at the time in which he wrote his essay, rheumatic pericarditis and endocarditis had been known as they are at this day, would he have placed solely in an alteration of the blood, which he does not specify, the pathognomonic character of acute articular rheumatism?

It is not that I deny an alteration of the blood in acute articular rheumatism. I have made on my part numerous researches, which show on the contrary that there is no other affection clearly inflammatory, not even pneumonia, in which can be seen a more perfect buffy coat, a more firm, more resisting, and more glutinous crassamentum. But we must, nevertheless, bear in mind that this is not the character which distinguishes acute articular rheumatism from other well marked acute phlegmasiæ with high febrile reaction; since on the contrary it is common to all. It has appeared to me that if the crassamentum be so firm and so glutinous, the inflammatory buffy coat so thick, so dense, resisting and so well organized into false membrane,

it is on account of the rheumatic fever being, above all, an inflammatory one; that this inflammatory fever is, in part at least, the result of a true phlegmasia of the internal membrane of the vascular system in general, and of the endocardium in particular, which gives rise to a secretion of false membrane and to the formation of the buffy coat.*

Till now, practitioners have been content with showing the buffy coat in the blood, after venesection. As I have before stated, I have also found it in the clots furnished by bleeding with cups around the joints.† There is at the present time under treatment, a pale, bloodless and cachectic individual, five or six years of age, who for about a fortnight past has been troubled with a subacute rheumatism of many of the joints of the inferior extremities, and more particularly of the right knee. As there is scarcely any febrile reaction and the heart is not affected, I have, on account of the impoverished condition of his blood, omitted to have recourse to general bleeding; but cups have been applied on the affected joint two days in succession; and what is worthy of remark, notwithstanding this impoverished condition of the blood, firm, glutinous masses were procured, covered with a grey resisting buffy coat.

If all which we have now advanced be not sufficient to demonstrate clearly, I had almost said mathematically, the inflammatory nature of acute articular rheumatism, I would adduce another argument of no little moment, viz:—Did acute articular rheumatism truly constitute an inflammation, it ought, when it fixes itself on a joint for several months and at last passes to the chronic stage, to produce the same disorder in that joint which an undoubted inflammation would have done. This is what actually does occur. Dissect the joints attacked by a rheumatic white swelling, and you will find really that the alterations noticeable in it are similar to those which characterise a white swelling from a traumatic cause, and which denotes the existence of an anterior inflammatory condition. I have had sufficiently frequent opportunities to assure myself of the truth of what I have just advanced.

We shall now compare the alterations caused by chronic rheumatic pericarditis and endocarditis, with those which chronic rheumatic arthritis brings in its train. Excepting the differences arising from the different organization of the heart and articulations, those alterations are essentially the same. In both cases adhesions, solutions of continuity, thickenings purely hypertrophic, or with transformation of tissues, are observed.

* Inflammation of the internal membrane of the sanguiferous system may, by another mechanism of which I am ignorant, dispose the blood to the formation of the buffy coat, and we will give the name, if there are no objections, of *hamitis* to this alteration of the blood. Certain it is, that the alteration is the product of a violent febrile action without complication of a typhoid or putrid state, and that this febrile action has its real seat in the vascular system, and in the blood circulating in it.

† I have noted the same peculiarity in other phlegmasiæ, and especially in erysipelas and pleurisy.

Acute articular rheumatism may, as we have seen, according to its degrees of intensity, at one time assume the purely fluxionary form, and at another the suppurative one. Now, under this new point of view, it again allies itself to a great number of other diseases whose inflammatory nature no physician denies. Take ophthalmia and coryza as examples. In the first degree, the first shade, the first notice of the phlegmasia, we have serous flux with redness and moderate sanguine congestion: in a greater degree, ophthalmia and coryza with puriform secretion. Behold stomatitis—first degree, copious flux of saliva, and of serous mucus with salivation; in a greater degree, secretion of false membranes, aphthæ, &c.

If we study bronchial catarrh, and compare the expectoration of the first with that of a higher degree, we shall find the same difference. In intestinal catarrh, known under the name of dysentery or bloody flux, the first degree exhibits serous diarrhœa; and at a more advanced stage, glairy secretion, bloody, puriform, and even sometimes shreds of false membrane, tendency to ulceration, &c.

Blenorrhagia shows, in the first stage, serous, and later one, purulent flux. Could we, if possible, have resemblances still more natural? We have but to note the inflammation of the arachnoid membrane, which, like the synovial, is spread out on a fibrous tissue. A milder degree gives cerebral fever, hydrocephalus acutus, serous effusion; a more intense one is marked by purulent effusion, false membranes, &c.

If we look at the phlegmonous and parenchymatous inflammations themselves, we shall discover similar peculiarities. Should we open, for example, a phlegmon in the crude state, we find the cellular tissue infiltrated with serosity of but little consistence, or with gelatinous lymph; but in a more matured state we discover pus.

Thus we see, beyond dispute, what no observer can deny, that one and the same disease may assume a great variety of forms without losing thereby its essential or peculiar nature. So true is it that the secreted products are modified according to the degree of phlogosis, irritation, or inflammation, that the different phlegmasiæ of which we have just spoken, when they terminate by gradual resolution, end in some measure as they had begun; that is to say, a simple serous flux succeeds suppuration, which itself had been preceded by serous flux or simple extra secretion (hypercrinia of M. Andral). It is known, in fine, that the phlegmasiæ may be prolonged indefinitely under this form, which constitutes the catarrh and serous fluxes of the older writers.

Why should not the metamorphoses through which the above mentioned different phlegmasiæ successively pass, be remarked in articular rheumatism? and if these metamorphoses do not prevent the first from being of an inflammatory nature, why should not the same rule be applied to the last? Moreover, if the fluxionary hypercrinic form of rheumatism be susceptible of a rapid disappearance, such is likewise the case with the majority of the other phlegmasiæ. We must always remember that on account of differ-

ences of organization, other things being the same, the mobility is not alike in them all, whatever be their seat.

Let us then frankly acknowledge that, under whatever point of view we attentively study the disease called acute articular rheumatism, it belongs by its very nature to the grand class of phlegmasiæ. It even constitutes one of the most important species, on account of the extent of the tissues, which it especially affects, tissues which are not peculiar to the joints alone, but which are met with, on the contrary, in other external and internal parts. Hence the coincidence of internal inflammations with those of the joints, the knowledge of which has cast a new and unexpected light over the phenomena of acute articular rheumatism.

II.

Let us now see whether the opinion which we advance is conformable with that of two physicians, whose labours have given most celebrity to the seventeenth and eighteenth century ; I mean Sydenham and Stoll.

As to the first of these two great observers, he does not hesitate to recognize in rheumatism an inflammatory character, and, in consequence, recommends us to treat it with free bloodlettings. Here follows his creed on this point. After describing two kinds of rheumatism, to wit, the acute articular rheumatism, properly so called, and rheumatic lumbago, he says : — *Cum utraque hæc morbi species ab inflammatione videatur oriri, quod tum jam dicta arguunt phenomena, tum præsertim sanguinis venæsectione educti color, ut pote qui pleuriticorum sanguini tam est similis, quam ovum ovo, neque quisquam reperitur, qui hos inflammatione laborare vel quidem dubitaverit ; his, inquam, ita se habentibus, censeo ego, curationem non aliunde quam a phlebotomia debere sumi.*—(De Rheumatismo.)

The theory of Stoll, less simple than that of Sydenham, does not seem at first sight to support as fully the one which we have advanced. The illustrious German does not hesitate to declare a certain kind of rheumatism to be inflammatory ; but there is another from which he appears to withhold the *processus inflammatoria*. Let us enter into some details on this head. However much we may all profess great admiration for the observing mind of Stoll in general, it is not less true that his view of the different kinds of one and the same disease is faulty in many respects, and is often in opposition to the best authenticated facts—nor is it irrelevant to note, that in his theoretical view he is sometimes in contradiction with himself.

When we read and attentively meditate on the numerous passages in which Stoll treats of rheumatism, and when we consider the spirit rather than the letter of his writings, we cannot fail to be convinced that the differences which he admits in rheumatism, depend more on the causes and seat than on the nature itself of the affection. Thus the rheumatism which he calls bilious, gastric, or saburral, does

not differ from that which he calls inflammatory, in respect to the symptoms and to what is perceptible in the diseased parts ; but in an etiological point of view, the first alone being of gastric or bilious origin, that is to say, "produced by an acrid and bilious matter absorbed chiefly from the stomach and carried to the periphery of the body, where it seizes on the orifices of the exhalent vessels and irritates them." We perceive by the language of Stoll himself, that bilious rheumatism was truly, according to him, an irritation, but an irritation which instead of being produced by a sudden chill, was caused by the transfer to the parts affected, of a gastric impurity, of an acrid irritating bile, &c.

Hence, all that we have to consider in this place is a question of etiology, and provided we grant to Stoll what he has said of his favourite polycholia in the development of acute articular rheumatism, rheumatic fever, he would not on his part deny that the articular affection constitutes an inflammation. He would the more willingly have made this concession, since he positively says, in speaking of the gastric rheumatisms of March 1777, that the blood was inflammatory, and that such was also the character of the diseases then prevalent, which at first had made him believe the rheumatisms to be inflammatory.

Stoll does not separate articular from muscular rheumatism, so called ; he takes especially great care not to say that cold produces one but not the other. And how, indeed, could he possibly have committed this last error ; he who cites cases in which, under the influence of cold, he has himself seen the two kinds of rheumatism spoken of supervene at the same time in the same person ?

Thus reduced to its true meaning, the question of the different nature of rheumatism well deserves a serious and mature examination, in a spirit free from all systematic prepossession and scholastic prejudices. Whilst fully admitting that in bilious or gastric rheumatism, the local disease is truly inflammatory, it is evident that conformably with this principle, to destroy the effect the cause must be attacked (*sublatâ causâ tollitur effectus*), in this species of rheumatism, and that the first indication presented would be to vomit, and it is known how far Stoll was true to this principle. It remains then for us to ascertain whether rheumatism sometimes proceeds from the bile or stomach, as Stoll has taught us ; or whether, on the contrary, in those cases even where the bilious temperament exists in persons affected with rheumatism, it be not a complication, a coincidence, rather than a cause of the disease. Nothing would seem easier at first sight, than to elucidate the problem now under consideration. Vomit the patient ; it will be said, if it cures him you have certainly treated a bilious rheumatism ; if on the contrary it does not cure him, you have not treated a rheumatism of bilious origin. Such was precisely the method pursued by Stoll, and he often declares that he could only resolve the problem in this manner. So much in criticism of the logic of Stoll. After all, whenever evacuants cure rheumatism, can it be rigorously concluded that acrid bile absorbed from the stomach had produced it ? Can it be that by opposing this

hypothetical absorption evacuations are of service? Is it clearly proved that the cure obtained after evacuation, was the effect (*post hoc ergo propter hoc*); or that the same rheumatism which Stoll cured by emetics, has by other practitioners been cured without recourse to them? Are there not then other inflammations, such as pleurisy and pneumonia, which have been, it is believed, cured by emetics; although assuredly they were not developed by the mechanism laid down by Stoll—the absorption of an acrid matter from the stomach, &c. &c.

But we have already said too much on this subject. Let it suffice to know, that even though we should adopt the ideas of Stoll on the gastric origin of rheumatism, it by no means follows, from the acknowledgment of this illustrious practitioner himself, that acute articular rheumatism does not constitute an inflammation. Because an inflammation caused by a thorn demands, as the first therapeutical step, the extraction of the foreign body, the acrid matter as it may be called, which has produced it, ought we to infer this inflammation is not an inflammation? Let us grant that it may be necessary in order to cure the acute articular rheumatism, called bilious, to extract the acrid matter of the stomach, to pluck out as it were the bilious thorn, the foreign saburral body; yet, still waiving the nature of the cause, as this rheumatism resembles that which is called inflammatory, it is impossible, agreeably to sound logic, and, still more, to accurate observation, to deny its being of the same nature. Again, this author so faintly denies the inflammatory nature of rheumatism, that he gives to this morbid condition the name of rheumatic inflammation. It is very true he adds, that rheumatic inflammation does not appear to him to be the same as that which is called true inflammation. But unfortunately, as I have formerly remarked, we shall in vain seek in this author for what he calls true inflammation. Yet more—in the whole course of his work he has not really given a single example of this true inflammation. Take away indeed the inflammatory affections he has described: rheumatic, bilious and septic inflammations, and what remains? Nothing, positively nothing. But I am in error. In his excellent dissertation on dysentery, Stoll indeed speaks of *true* dysentery. Would we know, however, what is this true dysentery? Precisely that which he designates under the name of *intestinal rheumatism, catarrh of the intestines, ventral coryza*; and yet Stoll farther on distinguishes inflammatory from rheumatic dysentery. What, forsooth, does he here mean by inflammatory dysentery? Rheumatism of the intestines complicated with an inflammatory fever. He adds that he has no conception of dysentery without rheumatism of the intestines.

If the reader will look over the resemblance indicated by Stoll, between rheumatic inflammation and the inflammation called true, he will see that if one be not like the other it is because he has taken, we make bold to say has actually mistaken sometimes, simple neuralgias for inflammations of serous membranes; pleurodynia, for example, for pleuritis. Nor has he sufficiently taken into account

the differences caused by complication, extension, dispersion or concentration of the inflammation. It will likewise be seen that certain differences which he there establishes are in contradiction with others in his work. For example, he says in this comparison that rheumatic inflammation does not observe the laws of coction nor those of crises; and in treating of rheumatic pleurisies he says that they formed crises by sweat.

Who also could believe that so acute an observer as Stoll, could assert that *true* inflammation ordinarily terminates in a few days, whatever may be the result; whilst rheumatism was often prolonged for weeks and rarely terminated in a short time, when abandoned to nature! As if inflammations, indisputably true ones, with considerable suppurations were terminated in a few days! As if the cause of the prolongation of rheumatic fever did not reside in some kind of inflammation! No; Stoll never would have thus expressed himself had he known in what condition were found the pleura, pericardium, endocardium, &c., in those affected with obstinate, never-ending rheumatic fever, so misunderstood in our own time even by certain *classical* physicians.

To conclude. All the distinctions of Stoll concerning inflammation, when they are well studied, and considered, and divested of all subtlety and all hypothesis, are reduced to this, which no one can deny; viz. that inflammation presents differences according to its degree, its cause, and its seat. But as to inflammation studied in itself, it cannot be supposed to offer various natures, seeing that of two morbid states essentially different, which would be classed under the name of inflammation, there would necessarily be one which was not an inflammation. Certainly a thing, whatever it may be, cannot change its nature without losing its identity.

CHAPTER VI.

Treatment of Acute Articular Rheumatism by repeated Blood-lettings.—Results of this Practice.

To propose a specific, such as colchicum, or something else, for acute articular rheumatism, would not be a proof of correct notions of the nature of the disease. We might as well propose a specific for pneumonia, one for pleuritis, another for pericarditis, &c.

The true specific for acute articular rheumatism, its quinine, if the phrase be allowed, is the antiphlogistic method, and the grand antiphlogistic is blood-letting. Since the time of Sydenham, this method has been generally adopted.

I do not pretend that we cannot cure acute articular rheumatism in any other way than by blood-letting. That would be to say that

nature alone does not sometimes cure this disease as well as others. What I affirm is that, in mild cases, we have tried several other methods besides blood-letting without success, and that blood-letting itself is not fully effective unless after the method we shall soon lay down.

But it is not sufficient to know that it is useful to bleed in a disease. We must determine, in a given case, what quantity ought to be drawn ; in how many times it is advantageous to take it ; what interval between the bleedings ; when they should be repeated ; whether the blood should be taken generally, or locally, or both at the same time, and in what proportion. This is what I would designate, if allowable, *to indicate the dose, to make formulæ of blood-lettings.*

It is by modifying the methods formerly employed, that we have obtained very different results from those previously made known, either in the treatment of acute inflammation in general, or of acute articular rheumatism in particular ; that disease so rebellious, it is said, to blood-lettings.

Before making known the method of cure which we propose for this last affection, we feel called upon to indicate that of Sydenham, and that of Dr. Roche, in his Article on Rheumatism of the Joints, in the *Dictionnaire de Medecine et de Chirurgie Pratiques*. The method employed by the majority of modern practitioners does not differ from that of Dr. Roche, except that the blood-lettings are generally more moderate.

I.

This is the method adopted by Sydenham :—" Ut primum accessor, statim sanguinis $\frac{5}{8}$ x. è brachio *lateris affecti** mitti jubeo.

" Die sequenti, sanguinis tantumdem detrahi præcipio ; atque intercalato die uno alterove, pro ægri viribus, tertio ; dein, interjecto trium quatuorve, dierum intervallo (prout ægri vires, ætas, constitutio, aliæque circumstantiæ suadent monentque), quarto atque ultimo ut plurimum, venæsectionem repeto ; raro enim usu venit, ut ultra quartam vicem venam incidamus, nisi vel regimen justo calidius præcesserit, vel medicamina calidiora ægro præter necessitatem fuerint ingesta."

These means were assisted by the use of simple juleps or of an emulsion, and by poultices, cooling drinks, injections, and regimen. Sydenham forbid anodynes or pectories ; and eight days after the last bleeding he gave a mild cathartic potion.

He does not say positively what was the duration of the disease under his treatment ; but it is easy to see that it was long, since he only prescribed the cathartic potion about the twelfth or

* The precaution which Sydenham here takes of bleeding from the affected side, is based on old and I may add antiquated ideas. Unless indeed bleeding in both arms were practised at the same time, it would be difficult to obey the precept of Sydenham, since a violent rheumatism of the joints almost always occupies both sides of the body at one time, though often in different degrees.

fifteenth day after the commencement of the treatment; and to show that convalescence was incomplete after its administration. he remarks, that the pains were much assuaged by the bleedings, without however being entirely dissipated.

We can judge of the value of the method of Sydenham, and of its influence on the duration of acute articular rheumatism, by the results which the majority of physicians of our times obtain from the employment of the ordinary method of blood-letting in the treatment of this malady. We see, then, that the most distinguished among them profess that, if the disease does not entirely baffle the method spoken of, it is at least certain that it does not notably abridge its duration, the medium of which is, they say, generally from forty to fifty days. This assertion rests on the most imposing mass of facts, and I shall not deny it.

The following is the result of the Sydenham practice in those cases in which Stoll pursued it. "I sometimes followed," says Stoll, "the practice of Sydenham, but the length of the disease often eluded this active treatment, and frequently the strength was destroyed sooner than the disease; the patients remaining weeks without being able to stir. Sometimes, after the example of other practitioners, I gave, in large potions, various diaphoretics, and I endeavoured, afterwards, by a warm regimen, to eliminate the morbid matter through the vessels situated on the superficies of the body; but, most commonly, the disease resisted all my efforts."

If we were to take literally an assertion of the celebrated successor of Dehaen, Sydenham had abandoned his method of blood-letting in the treatment of rheumatism. Let us go to the source, and see whether the English Hippocrates was culpable of this sort of therapeutic apostacy. It is not in a didactic treatise on rheumatism, but in a simple letter to Robert Brady, his friend, that we must seek for this pretended change of Sydenham. He writes that, grieved at being obliged to abstract so large an amount of blood in order to cure rheumatism, he resolved to try if he could not combat this malady by another method; and adds, that in fact he had found in a simple regimen, very light and moderately nutritive, such as whey, the precious secret of curing rheumatism without making use of repeated blood-letting. But in support of this new method, he reports only one case, that of an apothecary (*vir probus*, says he, *et ingenio non vulgari*), in which it was used with some success. Now we ought to know whether the rheumatism of this apothecary was anything less than an acute articular rheumatism; and if, like many other very worthy men of a mind above the ordinary standard, this person was not of a very dry and debilitated frame, and had but little blood in his veins:—*Cum debiliori esset et sicco corporis habitu, veritus ne minus firmas jamdiu vires et labescentes, dempto copiosius sanguini prorsus exsolverem, imperavi, ut solo LACTIS SERO ad dies quatuor vesceretur æger, &c.*

There is no one, I think, who would not approve of the conduct of Sydenham in a like case; but to conclude from this fact that we can cure acute articular rheumatism without any other treatment than

drenching the patient with whey, would be to fall into an egregious error. I have nevertheless thought, with the illustrious English practitioner, that this method was preferable even to the ready and solemn display of medical means with which, says he, the dying are surrounded, just as the beasts are crowned before they are immolated.

After having added that, were it not for the prejudice of the vulgar, this method could be applied to other diseases whose names he did not wish, at that time, to mention, and citing the example of success which a skilful physician might derive from means the poorest in appearance, Sydenham returns to the subject of rheumatism, and, at the same time, to its treatment by blood-letting, in professing that it would not be prudent to rely on the milk diet in those who have attained the age of manhood, or in those who have been addicted for some time past to wine or other spirituous liquors. He only proposes an amendment to his old method. It would be better, says he, after the second or third bleeding at most, to employ more frequently, and to repeat the cathartics until all the symptoms had entirely ceased, than to confide in phlebotomy for the entire treatment.

Most assuredly, every one will agree with Sydenham, that it is a melancholy thing to be obliged to take away a large amount of blood in the cure of rheumatism. But it is a sacrifice which prudence commands; and we make bold to affirm that they will be compelled to give for a long time whey, tamarinds, senna, rhubarb, and manna, who make use of two or three blood-lettings of ten ounces at most, in the treatment of acute articular rheumatism in a young man or an adult of common strength.

Among such as shall be thus treated, it will be found that a rheumatic inflammation of the pericardium, endocardium, pleura, &c. will carry some off; and others, who may be either more, or, shall I say, less fortunate, will sink at a later date under an organic disease of the heart. With a knowledge of such dangers, proved as they are by daily experience, is it really so great a sacrifice to lose some pounds of blood for the almost certainty of a cure at once prompt, permanent, and complete? Undoubtedly, if time, and experience, the mother of all discoveries, teaches us a method as sure and less prodigal of blood, we ought to hasten to adopt it as a great benefit. But either I am much deceived, or the time is yet far distant when we shall know how to cure surely, permanently, and completely (I will omit promptly), this terrible acute articular rheumatism, which is almost always accompanied with pericarditis or endocarditis, not to mention other complications.

II.

The Method of Doctor Roche.

Dr. Roche, our learned friend, has justly constituted himself the defender of general bleeding in the treatment of arthritic rheumatism. "If some practitioners have contested the benefits from this treat-

ment, it is," says he, "because they have not employed it with sufficient constancy or energy."

The method which this skilful physician proposes: "We must not hesitate to practise a copious bleeding at the commencement of acute articular rheumatism, nor fear to repeat it three, four, or five times in succession, if it be necessary, either in allowing an interval of two days between each bleeding, as Sydenham did, or in practising it every twenty-four hours, which appears to us to be preferable. I have used with the greatest success, in a very robust individual, as much as eight bleedings of sixteen to twenty ounces in the space of two weeks."

There is not a word respecting the local abstraction of blood in the plan of treatment of Dr. Roche, any more than in that of Sydenham. Assuredly, were we obliged to choose between the exclusive employment of general emissions of blood and that of local ones, we should not hesitate one instant to decide in favor of the former. But as such a choice is not forced on us, it is best that we should, at least in the great majority of cases, combine in proper proportions these two methods of abstraction of blood, as we shall do in the plan which it remains for us now to exhibit.

III.

Method by repeated Blood-lettings, General and Local.—Its Results.

I. Often a witness to the interminable duration of acute articular rheumatism, I resolved to attack it by employing blood-lettings in a manner different from what had as yet been done. Well convinced that acute articular rheumatism was at the head of inflammations of the most evident and legitimate character, I had recourse to the method of copious blood-lettings practised in quick succession (*coup sur coup*), in the same way as I employ them in pneumonia, pleuritis, pericarditis, severe erysipelas—in a word, in all febrile inflammations which endanger more or less the life of the patients. I had recourse to this method even before I had well detected pericarditis and endocarditis as the ordinary accompaniments of acute articular rheumatism.

The success attending this new method of abstracting blood, is such that it is impossible to believe it without ocular demonstration. Of course I am not in the least surprised at the philosophical doubts of some individuals; but what does appear singular to me and rather unphilosophical, is formally to deny results without testing them by their own experience or that of others. What I fear not to assert is, that all those persons (and they are numerous) who have been witnesses to the employment of this method, have been obliged to acknowledge its immense superiority over all others. We have even had witnesses deeply prejudiced against it, and perhaps even still more prejudiced against us, and yet they have finally done justice to it. By the new method the medium duration of rheumatism is only one or two weeks instead of six or eight. As to the mortality up to this period, there has been no death, even in those cases in which the rheu-

matism of the joints was accompanied by that of the heart, and our observations prove, as already said, that those cases are the rule, whilst the contrary ones are the exception. But we are not to believe that such is, also, the case in the practice of others. To be convinced of the contrary, if we walk the hospitals and read the journals of medicine, we shall there come across cases of articular rheumatism complicated with pericarditis, endocarditis and pleuritis, which are mortal. I have reported a certain number of cases of this kind in the *Clinical Treatise on Diseases of the Heart*.

Another advantage of the new method is to prevent the passage of the disease into the chronic state, a serious termination, even when confined to the joints, but often mortal at a period more or less advanced, when in the heart. Our observations prove but too truly how common is this last event, since one half perhaps of lesions of the heart called organic are owing to an old rheumatic affection, or are, if we may use the expression, of a rheumatic descent.

II. Supposing the patient of good constitution and in the prime of life, on the day of his entrance into the hospital, at the evening visit I order a bleeding of four bowls; sometimes in very robust individuals five and even six bowls.*

Second day.—Venesection, three and a half to four bowls, and in the interval of these two bleedings a local one, either by leeches or scarified cups, which last I prefer. By this local abstraction of blood I obtain three, four, and even five bowls more. The cups are placed around the joints most affected and over the precordial region, when the heart is affected, that is to say, in the great majority of cases.

Third day.—The same as on the second day.

Fourth day.—The fever, pains, swelling, in a word all the inflammatory phenomena, sometimes disappear at this time—then we abstain from further abstraction of blood. If the above result is not obtained, a fresh bleeding from the arm is practised.

Fifth day.—In general, resolution has commenced by this time—however in very severe cases the fever called rheumatic may still in some degree remain, and then we practise another bleeding from the arm of three bowls, or draw the same quantity by cups or leeches.

On the sixth, seventh, or eighth day, the patient is decidedly convalescent, and begins to take nourishment. Should a serious relapse take place (and this new method, though it does not give perfect preservation, promises infinitely more than the old one) we must again resort to bleeding. Thus, in a case where four bleedings had arrested a severe acute articular rheumatism there was a violent relapse, which we only mastered by five more bleedings. If the relapse be mild, we may trust to emollients, diet, baths, opiates, &c. To avoid it the most important precautionary measure is protection from the least exposure to cold. The adjuvants to these repeated bleedings are

* See CASE III. of the first head.

diet, demulcent drinks, blisters, compresses, sometimes smeared over with mercurial cerate, around the joints affected; and position, poultices, baths, and opiates; the last either internally or applied according to the endermic method. Some physicians use opium in very large doses, but we prefer the ordinary ones.

The medium quantity of blood which we draw, in individuals of a good frame of body with intense acute articular rheumatism, is from four to five pounds, being the same as in pneumonia of medium extent and intensity. In certain cases, where the attack is very severe, we are obliged to take six, seven, and even eight pounds. In mild cases, on the contrary, two or three pounds only are taken; but we must not forget that in these cases, which we call mild, there is, notwithstanding, fever; for in rheumatism without fever, a single bleeding often suffices, and this sometimes may be dispensed with altogether. Even in extreme cases we have never been forced to draw twelve pounds, as others assure us they have, without, however, then arresting, so they tell us, the course of the disease. It is making a sport of misfortune, if a rheumatism thus treated should seem to terminate only the twenty-fifth day; and then to return in a few days. This misfortune has happened to M. Chomel, as he himself told me, and the fact has been moreover published in the *Lancette Française*, October 1835, from which we extract the following: "The practice of abstractions of blood has often been followed by ease; but although it has been carried far, we have never been able to arrest the rheumatism. I would recal, among others, the case of a patient from whom twelve pounds were taken; the disease seemed to terminate on the twenty-fifth day, but it returned in a few days and lasted two weeks."

To this we have no answer to make, except that in using our method, as we use it, the same result will be obtained which we obtain. We repeat; there is no comparison between the effects produced by the abstraction of four or five pounds of blood, in the space of three or four days, and those produced by the abstraction of the same quantity in the space of eight, ten, fifteen, or more days. Truly, we know not why so many daily say that they bleed the same as we do, and that nevertheless they do not obtain the results which we announce. No, emphatically no; they do not bleed according to our method, whatever may be said to the contrary.*

* In an extended note, part of which has been incorporated above with the text, M. Bouillaud proceeds to show, by a detail of two cases, that distinguished practitioners, who allege that they had employed his method of free repeated bleedings in rheumatism, were in error. In the first case, the patient was bled to the extent of twelve ounces on the first day of treatment, and the same quantity on the second; sixteen ounces on the third: twelve leeches were applied to the left foot on the fifth day; and fifteen leeches to the right foot on the sixth day. On the ninth day of the disease twelve leeches were applied to each inner ankle. The other remedies were opiates, cataplasms, demulcent drinks, and a little oxymel of squills.

I would ask, says the author, whether, in conscience, the formula of repeated bleedings, four in the twenty-four hours, including local depletion, is that which was employed in the preceding case. The very fact of the failure to procure the desired relief by even free bleeding after the common plan, is, he alleges, a new and

III. From the month of September 1831 to September 1835, one hundred and eighty-four cases of rheumatism, in our clinic, have been published in the *Journal Hebdomidaire*. All of them have been cured except one, which I have given in the article on the anatomical character of acute articular rheumatism. I have already said that, at that time, I had not-as yet used the method of reiterated bleedings at short intervals, such as I have given an account above; whence it follows that since using this method no patient has died.

We shall give some details of ten cases which were observed during the last six months of 1832 and 1833. At the end of this analysis we shall give a statistical table of sixteen others, observed in 1834.

In most of the patients of 1832 and 1833 the fever was most intense. They had been attacked under the same atmospherical conditions and medical constitution as the pleuropneumonias, which were received in great numbers at the same time. Some of those affected with rheumatism were seized simultaneously with pleuropneumonia or pericarditis. It was then I began to have an insight into the law of coincidence between the rheumatism of the joints and the rheumatism of the heart, between rheumatic arthritis and rheumatic pericarditis and endocarditis.

Two of these cases were very mild, and did not require large emissions of blood. Of these ten cases there were seven men and three women.

1. MEN.—(In the Hotel Dieu.)

1st Patient, 19 years old—three bleedings of four bowls each, twenty-four leeches; cured sixteenth day.

2d Patient, 59 years old—milder attack than the preceding—two bleedings of three or four bowls; cured on the tenth day.

3d Patient, 22 years old: a pretty smart attack—two bleedings of three or four bowls, ninety leeches; cured on the fifteenth day.

4th Patient, 22 years old: two bleedings of three or four bowls, sixteen leeches; cured sixteenth day.

5th Patient, 45 years old—three bleedings of three or four bowls; cured twentieth day.

6th Patient, 25 years old: very intense attack, in which almost all the joints were affected—seven bleedings of three or four bowls, fifty-eight leeches; cured twenty-fifth day.

7th Patient, 30 years old: the most intense attack, occupying all the joints, with very high fever—four bleedings of three or four bowls, forty-four leeches; cured fourteenth day. Relapse from exposure to cold: five fresh bleedings of three bowls; cured again sixteen days after the relapse.

incontestable proof of the superior efficacy of the practice which he advances and advocates.

In the second case, the patient, a female, had been bled on alternate days four times for the first eight days, and afterwards had, at successive times, fifteen leeches applied to the right shoulder, eight to the wrists, twenty-eight to the ankles. The duration of the treatment (in the Hotel Dieu) was for two months and a half, at the expiration of which time she was still not entirely well.

2. WOMEN.

8th Patient, 19 years old ; of a delicate constitution : intense rheumatism, and complicated with endocarditis—four bleedings of three or four bowls, six leeches ; cured sixteenth day. When this patient left, there was still a bellows sound quite perceptible, which masked the valvular flapping of the heart ; the external rheumatism had entirely disappeared.

9th Patient, 23 years old : mild attack—twenty leeches ; cured from the eighth to the tenth day.

10th Patient, 45 years old : chlorotic, affected with utero-vaginal catarrh—one bleeding of two or three bowls, and fifteen leeches ; cured sixteenth day.

NOTE.—The adjuvants were demulcent drinks, diaphoretics, baths, opiates either externally or internally, laxatives, compression on the joints where there was a puffy swelling without pain, absolute diet until the fever had ceased.

Statistical Table of sixteen cases of Acute Articular Rheumatism, treated after the method of repeated bleedings at short intervals, general and local, during the five months of the year 1834.

Date of the disease on entrance	Venesection at the arm.	Leeches.	Cups scarified.	Duration of treatment.	Time of cure after entrance.
MEN.					
8th day	1 (4 bowls)	52		9 days	17 days
3d	4 13 "	12		9	14
15th		30	3 (10½ bowls)	17	32*
15th	4 17 "			10	23
8th	3 11 "			6	14
3d	6 20 "	20	1 3½ "	23	26
15th	3 12 "			7	22
8th	2 9 "	94	2 6 "	14	22
15th	4 16 "			6	21
7th	2 7 "	40		8	15
6th	1 4 "			7	13
WOMEN.					
5th	2 7 "		2 6 "	12	17
7th	4 12 "	11		12	19
3d	1 3½ "	24		11	14
3d	7 24 "			16	19
5th	5 11 "	157		15	20

* We must remark, that in this patient the rheumatism was confined to the knee, and that it was the longest and most rebellious of all. It is not, however, the only one of the kind. When the disease thus fixes itself on a few joints, it has generally more intensity and a stronger hold than when spread over many. It must also be noted, that in this patient the rheumatism had commenced fifteen days previously to entrance, and that, nevertheless, it terminated less rapidly than in those who entered only a few days after the commencement of the attack. This last fact is addressed to those who have answered our statements by saying that, in those cases in which the rheumatism was cured as promptly as we announced, it was because it had existed a long time before their entry. This objection appeared very strange to us ; for, as a general rule, we cure so much the more promptly acute articular rheumatism as it is of more recent date at the moment of entrance of the patient.

NOTE.—The medium quantity of blood abstracted, generally and locally, in the above cases was about four or five pounds. The medium duration of the malady, until a complete cure, about nineteen days. In one patient alone, the abstraction of four bowls sufficed for the cure. The adjuvants were as follows: in nine patients, opiates; in two, a blister, in one of whom also a purgative; in two, baths; in three, mercurial frictions, with or without compression of the joints. We have only reported as cured those who have no fever, who rise, walk, and eat a quarter, half, or three-quarters allowance.

IV.

I shall terminate this chapter by the detail of two cases of acute articular rheumatism, rapidly cured by bleedings in quick succession; although in one, at least, of which the heart was seriously affected. I shall, however, previously give an analysis of eight analogous cases, already detailed in my *Clinical Treatise on the Diseases of the Heart*.

The subject of the twenty-seventh observation in the Treatise, had been sick eight days when he entered. Treated by bleedings in quick succession he was cured in fifteen days, and ate then his quarter allowance.

The subject of the thirty-third observation had been sick three or four days when he entered: treated like the preceding he became convalescent on the fifth day. He wished to go out about the tenth day, but as the heart was not quite well we kept him till the end of the month, he having come in on the eighth of October. From the seventh day the pulse had fallen from 96 to 56.

The subject of the thirty-fourth observation having already experienced six attacks of articular rheumatism, was seized with the seventh, five or six days ago, December 6th, when he entered; he was cured at the end of the month, after having been bled several times in quick succession. January third, a pleurisy came on, which soon yielded to fresh emissions of blood, and he went out on the eighteenth of the month. The precordial dulness which on his entrance occupied a surface of sixteen inches square, was reduced to a surface of an inch square. In the observations eighty-four and eighty-five, similar means were followed by similar results. It is curious and instructive to compare these cases with the ones in which blood-letting is employed according to the ordinary method, or which were treated by other methods than blood-letting. Comparative therapeutics are not sufficiently insisted on at the present time.

The subject of the thirtieth observation had been sick three days, when he entered the clinic of our honourable and learned colleague, Dr. Dalmas, June twenty-seventh; from the twenty-eighth to July eighteenth, he was bled five times from the arm, and had seventy-five leeches in four applications. Nevertheless, July twentieth, pericarditis still existed to a considerable degree, and the pulse was 102. The patient did not go out till August twelfth, not being yet in a healthy condition. The four first bleedings, of three bowls each,

were made June twenty-eighth, twenty-ninth, thirtieth, and July first; the fifth bleeding, of two bowls, July ninth; blisters, purgatives, Malaga wine, and sinapisms, were also employed; the wine was used to combat some typhoid symptoms. He remained six weeks.

The subject of observation thirty-one was treated by me also after the old method, pretty freely applied however. Convalescence only commenced at the end of twenty days, and when he went out the bellows sound of the heart had not entirely disappeared, though he seemed well in other respects.

The subject of observation thirty-two was a child twelve years of age, who was received into the clinic of M. Baudelocque, October eleventh; he had only been sick two days. Treated by a purgative and tartar emetic in large doses, he was not in a condition to leave before the twenty-fifth day. At this time there was yet a bellows sound in the precordial region; respiration was at times straightened and the smallest departure from a proper regimen brought back the diarrhœa. M. Dance in an excellent Memoir has shown the inefficacy of tartar emetic in large doses in acute articular rheumatism. In the subject of the first case reported in these new researches, this medicine and bleedings at long intervals were not able to arrest the disease.

In comparing these facts with the preceding ones, and with the two observations which we are about relating, to which I could add others of daily occurrence, we must necessarily conclude that the emissions of blood in quick succession cannot, with our present knowledge at least, be advantageously replaced by any other method, least of all by the expectant one. We have at the present moment a fresh example of this truth. A man is received with a mild rheumatism; we abandon the disease to nature, seconded by baths, diet, and emollients; sixteen days pass away without cure: but still more, to some slight signs of endo-pericarditis are added evident ones of a double pleuritic effusion; then we have recourse to abstractions of blood in quick succession, and the patient becomes fully convalescent in seven or eight days.

Observation I.

Acute articular rheumatism occupying the feet, knees, hands, elbows, &c.; five bleedings in five days, and twenty-four leeches; convalescence on the sixth and seventh days. No relapse; left the seventeenth day.

J. B. Berguin, aged 28 years—artilleryman with unlimited furlough; dark skin, strong constitution, came from Metz fifteen days since, when he entered our clinic, December 19, 1833. On the journey he had been subjected to rain, wind, and fatigue. It is, however, only within five or six days that he has felt pains in the lower extremities strong enough to cause him to keep in bed. Nothing had been done previous to his admission. On the 20th the pains continued in the lower extremities, and especially in the knees; the joints of the superior extremities were but slightly attacked. There was little swelling and no redness in the knees; the least motion increased the pains, on account of which the patient remained motionless in his

bed as if he were greatly prostrated. The face was red and animated ; pulse strong and voluminous, 96 to 100 ; skin moist, the sweat being viscid and exhaling a musty odour ; sleeplessness, thirst, loss of appetite, tongue white in centre, red at the sides and at the point. Two bleedings of four bowls, infusion of elder and wild poppy, poultices, enemata, diet.

21st.—Is easier as regards the pains in the lower extremities, but the upper ones are worse ; the wrists and hands are swollen, red, hot, and very painful on the least motion ; the elbows and shoulders not so much so. Another bleeding of four bowls ; twelve leeches to each hand ; other means as above.

22d.—General ease, less fever, immobility and prostration ; the wrists not so red nor painful. A fourth bleeding.

23d.—The patient is very well ; no fever, pulse 80 ; skin of a natural temperature, moist ; no pain ; if symptoms return he is to be bled in the evening. At 8 P. M., return of pain in the wrists and shoulders ; towards morning they were calmed ; he was not bled.

24th.—Pulse still strong, full, hard, 80 to 84. To terminate the disease a fresh bleeding of three and a half bowls is prescribed ; two cups of chicken water were allowed. The crassamentum of the five bleedings was covered with the buffy coat, or rather a membrane of a white grayish colour, quite shining at the upper part and very resisting ; the proportional quantity of serum increased from the first bleeding to the last.

25th.—The patient is quite well ; pulse 80 to 84, less hard and full ; convalescence. On the following days no relapse ; some twitchings in the superior extremities, but no swelling or pain, and which slightly impedes motion ; food is increased and baths ordered. The patient feeling perfectly re-established went out January 5, 1834.

Thus we have an acute articular rheumatism attacking almost all the joints, with high fever, really arrested in five days of energetic treatment. The cure was so complete, that on the seventeenth day of admission he was able to leave the hospital.

Observation II.—Reported by Dr. Raciborski.

Acute articular rheumatism in the hands, elbows, shoulders, both knees, and right foot. Five bleedings in four days ; poultices to the joints ; narcotics ; convalescence in four or five days after the commencement of the treatment ; no relapse. Left on the 13th day.

Frances Villette, a cook, aged 27 years, never had children, entered La Charité Hospital March 12th, 1834. Her parents had been exempt from rheumatism. At the age of six weeks she had the small pox, of which she exhibited the marks on her face. Has a strong constitution. Since the age of 18 years, the time of her first menstruation, her menses always came very regularly and abundantly. She has lived in Paris four months in a damp situation. Her profession exposes her to great changes of temperature, in her being often obliged to go down into the cellar after being much heated near the fire. Five days ago she felt the first slight pains in the lumbar region, which lasted two days. Next day pain in the knees came

on ; but no inconvenience in her arms ; no fever, nor chill, nor headache. The pains in the inferior extremities increased, and she was obliged to go to bed ; in the evening a physician was sent for who bled her largely, and ordered a decoction of barley and honey. Fourth day finding herself no better she was taken to the hospital.

March 14th.—Impossibility to lift the hand to the head ; pain in all the joints ; face animated ; sibilant *râle* at the anterior and posterior part of the chest. I bled to three or four bowls, and the same in the evening ; infusion of flowers of elder and violets sweetened with syrup of gum ; gummy potion with half an ounce of diacordium.

15th.—The patient only feels a little numbness in the legs, and chiefly in the right foot ; but the knees are swollen, red, and painful. All the articulations of the upper extremities are attacked, and the wrists especially, very severely ; slight cough without expectoration ; sibilant *râle* all over the chest : the sound on percussion is good ; 104 to 108 pulsations ; 28 inspirations ; skin hot ; face red ; tongue white ; thirst ; stools and urine healthy. The blood by the first bleeding presents a general buffy coat but thin, and that of the last a partial buffy coat but thicker than the other. Bled to four bowls by a large orifice ; infusion of elder and violets sweetened with syrup of gum ; gummy potion with half an ounce of syrup of diacordium ; poultices around the painful joints ; diet.

16th.—Coagulum of blood in the form of a mushroom of remarkable density ; buffy coat very well defined ; the arms are only a little numb, and not so painful as yesterday ; the knees which were the most painful are no longer so, and the patient can move them with ease ; tongue not so white nor coated ; considerable thirst ; 88 pulsations ; sweats much ; is bled three bowls.

17th.—The serum of the blood predominates ; coagulum dense, and covered with a thick buffy coat, and elevated edges ; patient is coming on finely ; but little uneasiness in the wrist and scapulo-humeral articulations, chiefly the left ; 88 pulsations ; pulse undulating and well developed.

The fifth bleeding of three bowls was practised ; soda water ; two pills, each containing a quarter grain of opium ; two cups of chicken water.

18th.—Coagulum buffy, with raised edges of well marked consistence ; but slight uneasiness in right wrist ; 67 pulsations ; convalescent. Infusion of elder and violet, sweetened with syrup of gum, two pots ; two pills each containing a quarter of a grain of opium ; two cups of chicken water.

19th.—No pain in any of the joints ; two soups ; three potages ; one cup of milk ; opiate pills as before.

20th.—Convalescence continues ; 64 pulsations ; pulse well developed ; go on with same remedies ; bath ; a roasted apple.

21st.—No pain in any part ; but little debility ; continue remedies ; quarter allowance.

22d.—Improves very satisfactorily.

25th.—Cure perfect ; and on the 26th she left the hospital.

A PRACTICAL TREATISE

ON THE PRINCIPAL

DISEASES OF THE LUNGS,

CONSIDERED ESPECIALLY

IN RELATION TO THE

PARTICULAR TISSUES AFFECTED,

ILLUSTRATING THE

DIFFERENT KINDS OF COUGH.



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PHILADELPHIA:

HASWELL, BARRINGTON, AND HASWELL.

1837.

P R E F A C E.

THE great prevalence of Diseases of the Lungs, and the danger to life which attaches either to their immediate consequences, or ultimate results, have ever obtained for them a large share of anxious attention and study.*

Although the returns from the Bills of Mortality cannot be considered as perfectly correct, yet, among the diseases most familiarly known, and therefore least liable to be inaccurately reported, are those of which we are about to

* The following is an abstract from the "Weekly Account" of deaths from lung diseases for the month of December, 1836.

DISEASES.	WEEK ENDING			
	6th Dec.	13th Dec.	20th Dec.	27th Dec.
Asthma	45	86	10	10
Consumption	221	333	42	36
Croup	2	53	1	2
Hooping Cough	24	70	6	10
Inflammation of the Lungs and Pleura	22	25	5	3
Measles	39	84	3	7

Total for the Month, 1139.

treat. By these returns, it appears that deaths from diseases of the respiratory organs average above one-fourth of the whole number.

Amongst the causes to which this extensive prevalence may be ascribed are, the changeable character of our climate, the faulty conformation of the chest, hereditary predisposition, &c.; but perhaps no cause contributes more largely to swell the list of mortality than the patient's own neglect; and the ordinary expression, "It is only a cold," is one which is often too slightly applied to what is shortly to lead to the grave!*

A cough, it is true, is frequently a trivial complaint in its first effects, and with common attention may be easily got rid of; but we are to recollect that a cough, even of the simplest kind, is apt to lay the foundation of permanent mischief. Dissection every day demonstrates the fact that, whatever may have been the disease which has ultimately proved fatal, or how much soever other organs may have suffered pathological alterations, the lungs are rarely found perfectly sound—an effect solely attributable to some previous inflammatory affection of the part. This fact of itself proves the danger of delaying to attend to a cough that evinces any degree of obstinacy in yielding, for the very circumstance of its obstinacy should be taken as a timely warning. In the incipient stage of the complaint, proper means can effect much, whereas, when the disease is firmly rooted, the utmost resources of our art often avail us nothing.

* Dr. Woolcombe states the number of persons who annually fall victims to consumption in England, to amount to fifty-five thousand.

No views in medicine are beginning to obtain more general acceptance among the best informed, and most experienced practitioners of this country, than those relating to the tissues. When attentively studied, it will be seen how closely identical tissues, when diseased, assimilate in their pathological nature, in their morbid physiology or symptoms, in the character of their terminations, and, lastly, in the therapeutic means which experience has proved to be most successful in their cure. It was on this basis, that the Author constructed his "Synopsis of Nosology," in elucidation of the principles of pathology; in his Lectures on Therapeutics, he has found the same views not less illustrative in explaining the operations of medicines on specific tissues; and he has combined both circumstances in treating of the diseases which the following pages embrace.

Independent of the importance to pathology in general of the doctrine of the tissues, first hinted at by Dr. Carmichael Smith, and afterwards more fully developed by Bichat, the researches of men eminent in other departments of medical science, have contributed to a correct knowledge of pulmonary diseases, by confirming that which is deducible from the homogeneity and mutual dependence of tissue, symptom, and therapia. The progress made towards a more accurate acquaintance with the diseases of the chest, derived from the invention of the stethoscope, is now universally admitted. This we owe to Laennec. The seat of tubercles has lately been ably elucidated by the anatomical labours of Dr. Carswell; and that of croup has been not less correctly defined by M. Bretonneau—a writer who, by his recent investigations, has thrown more

light on the pathology of this disease, than any that has preceded him. Of the result of these investigations, the Author has freely availed himself, from their not being generally known in this country.

*36 George Street, Hanover Square,
7th February, 1837.*

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THE
NATURE AND TREATMENT
OF THE PRINCIPAL
DISEASES OF THE LUNGS.

INTRODUCTORY OBSERVATIONS ON THE PHYSIOLOGY AND PATHOLOGY
OF RESPIRATION.

THE organs of respiration consist of various structures; and these, again, are composed of different tissues: for instance, the structure of the upper part of the windpipe, constituting the organ of voice, is not the same as the lower part, which forms the air tubes; while the structure of the substance of the lungs bears no resemblance to either. Now, inasmuch as the structure and particular function of the different parts entering into the composition of the respiratory organs vary, so also might we naturally expect the particular signs or symptoms which characterise them to differ when they severally become the seat of disease. To point out these distinctly, as well as the best means of removing them, is the object of the present treatise.

Breathing is a compound action, consisting of inspiration, or the inflation of the lungs by the reception of air into them, from the surrounding atmosphere; and of expiration, or the emptying of the lungs of the air they contain.

The first, or inspiration, is performed by the chest expanding its walls, and thus enlarging its capacity, when the air from without rushes in to fill up the vacuity. Expiration, on the contrary, is produced by the sides of the chest collapsing to their former state; and the compression, occasioned by their fall, expels the air from the lungs.

Natural breathing is performed slowly, and without apparent muscular effort. An adult person respires, on an average from fifteen to twenty times in a minute; an infant from thirty to thirty-five.

Breathing is both a voluntary and an involuntary action: we can hurry or suspend it, to a certain extent, at pleasure; but we must consider it chiefly as an involuntary function, for, during sleep, it is

performed unconsciously, and the same, for the most part, even when we are awake.

Natural respiration is accomplished by the alternate contraction and relaxation of the muscular fasciculi placed between each rib, and the diaphragm or midriff. In childhood, breathing is principally performed by the first set of muscles—the intercostals, as they are called; in manhood, both equally concur in the action; and in old age owing to the loss of flexibility, or complete ossification of the cartilages of the ribs, respiration is almost entirely performed by the diaphragm. It is this last muscle, likewise, which contributes most powerfully while we are awake and up; and the intercostals during sleep. The reason for which is obvious, since, in the recumbent position, the diaphragm cannot so readily descend (which it is obliged to do on contracting), on account of the bowels pressing against it.

Many circumstances modify the frequency of respiration besides a local affection of the organs. The enfeebled and nervous breathe with more frequency than the robust and healthy; passions of the mind, exercise, rest, the qualities of the air we respire, all affect the frequency of respiration.

Without entering upon the use and purposes of respiration as regards life, it cannot have escaped the reader's reflection, that, however essential atmospherical air is to the immediate sustenance of the vital functions, still it is a matter which, in its natural condition, is foreign to the system. In the healthy state of the air passages and cells, this extraneous body, coming in contact with and distending them, excites no irritation; on the contrary, the blood circulating through the lungs has an affinity or appetite for the air, if I may be allowed an expression which is no metaphor; and the fact in demonstration of this is, that in proportion to the quantity of blood which passes through the lungs, by so much, in their ordinary state, is the frequency of breathing regulated.

When the frequency of breathing does not, or can no longer, keep pace with, and bear proportion to, the volume of blood circulating through the lungs, as happens in running, &c. then the sensation we call breathlessness, and a feeling of engorged fulness, amounting almost to suffocation, comes on.* It is this "want of air," as Laennec expresses it, which is one cause of the laborious breathing that accompanies several of the diseases of the air-passages, where there is much thickening or tumefaction of their lining membrane; for then the blood undergoes slowly, and with difficulty, the vital interchange of elements resulting from the presence of the air, thus causing it to tarry in its course, and the accumulation or engorgement which this gives rise to consequently produces dyspnoea.

Though the distension of the lungs by inspiration, and the contact of the air with their inner surface, cause neither pain nor irritation

* On this account it is that the horse has eight pulmonary veins, while man has but four. As an animal of speed, it was essential that there should be no ready breathlessness, and, therefore, as little pulmonary engorgement as possible; and hence the number of veins to empty the lungs of blood.

in any part of their structure in a state of health, it is oftentimes far otherwise in a state of disease. In the latter case, the air is frequently expelled with convulsive vehemence; and the noise it makes in passing thus through the organ of voice is familiarly called *cough*.

Cough, therefore, is nothing but a convulsive, forcible, and, therefore, noisy, expiration; and hence, whatever irritates the lungs, directly or indirectly, whether that be inflammation, the accumulation of phlegm, or spasm excited by a distant sympathy, throws the expiratory muscles into sudden and violent action; or, in other words, excites *cough*. From respiration being partly a voluntary as well as an involuntary action, so does cough, in like manner, partake of its twofold nature, and is either irresistible when excited by an irritant, or it may be induced by a simple effort of the will.

The foregoing observations lead us naturally to this inference, that since there are so many various causes of irritation, both external and internal, direct and indirect, capable of exciting cough, or convulsive expiration; so, in an equally great degree, must coughs also differ in their character, and vary in their mode of treatment.

It forms no part of the plan or purpose of this treatise to enter into any anatomical description of the respiratory organs, however essential it may be for the medical practitioner to know their anatomy most intimately. An accurate and intimate acquaintance with the most minute and delicate structures of the body is absolutely required to understand, not less the laws of morbid action, than those of natural physiology; and on such a basis it is, that the writer has endeavoured to found his *Synopsis of Nosology, or Classification of Diseases*. If we trace the multiform phenomena, either of health or disease, up to their elemental agents we shall invariably find them to be placed at the ultimate extremities of every organic structure; and on this governing principle depends the only sure means by which we analytically come to connect symptoms with the disorder, or disorganization, of organs: *since each tissue, as I have observed elsewhere, has not only a mode of diseased action peculiar to itself, but likewise possesses its own particular sensibilities and irritabilities*. Different structures, therefore, are impressed by stimulants of very different and often opposite kinds: a circumstance of the greatest importance in the cure of disease, since it forms the only rational foundation of all therapeutic principles. The fact of the identity of all morbid phenomena depending upon the homogeneity of tissue, not only establishes the respective affinities which so many diseases have with one another, but also illustrates the connexion between a suite of symptoms set up in the same disease. All the leading symptoms of measles, for example, are inflammatory affections of various mucous tissues; and the particular manner in which they are grouped, forms the specific character of the disease.* But to return to the lungs—if we examine the ultimate tissues that compose the structure of the internal organs of respiration, we shall find them consisting of the mucous,

* Vide the Introductory Remarks to the author's "*Synopsis of Nosology*."

cellular, serous, vascular, cartilaginous, muscular, lymphatic, and nervous, each of which have characters attached to them, when the seat of disease, that widely distinguish them from each other. Now, although among tissues so closely in contact with one another as many of these are, it rarely or never happens that one alone forms the seat of the disease; on the contrary, though beginning but in one, it be apt to involve other, sometimes all the different, tissues of the lungs;—still, I apprehend, we shall be best enabled to trace the propagation of the diseased action from one tissue to another, by making ourselves thoroughly acquainted with the symptoms peculiar to each. With principles so obviously plain and simple for our guide we shall now conclude these introductory remarks, and at once proceed to the exposition of the diseases affecting that tissue, which is the seat of several different affections, usually confounded together in common language under the denomination of “colds:” namely, the affections of the mucous tissue of the respiratory organs.

CHAPTER I.

OF COMMON CATARRH; OR, A “COLD.”

THE lining membranes of all the passages, whether destined to convey matters out of or into the system, and hence exposed by their functions to the contact of extraneous bodies received from without, or of excrementitious matters extruded from within, are kept constantly lubricated by a fluid called *mucus*: and hence, are termed mucous membranes. To give an idea to the general reader of what mucus means, we may observe, that the natural discharge from the nostrils is mucus; and that which in ordinary language is called phlegm, or the discharge from the lungs, is likewise mucus. Now, both the nostrils and windpipe, down to its most minute sub-divisions in the lungs, are lined with mucous membrane: it is continuous throughout; and, according as particular portions of this membrane form the seat of the morbid action, so does the disease take its name from the part affected. For example, when the mucous membrane of the nostrils and their cavities become the seat of inflammation, the disease is called Mycteritis, Coryza, or a Cold in the Head; when it attacks the larynx, or that part of the windpipe forming the organ of voice, it is denominated Laryngitis; and when it is seated in the branches into which the windpipe divides, the *bronchi*, the inflammation obtains the name of Bronchitis.

The first symptoms of inflammation of a mucous membrane, are partially exposed to observation in mycteritis.* There is a visibly

* From *μυκτις*; the nostrils.

increased redness of the part, attended with a sense of heat and dryness; the membrane swells, and thus somewhat obstructs the free passage of the air through the nostrils, giving rise to the feeling of stuffing, as it is commonly called, as well as loss of smell: a heavy dull pain is felt about the root of the nose, and when this extends over the lower part of the forehead, it indicates that the inflammation has extended to the lining membrane of the frontal sinuses, when the disease from the pain gets the name of *Gravedo*. The mucus, now shortly afterwards secreted, is both altered in quality and quantity, and from being bland, viscid, and scanty, merely sufficient to lubricate the nostrils, it becomes acrid, watery, and abundant, frequently excoriating the parts over which it runs. The tumefaction in the nostrils of an infant, in consequence of this disease, is sometimes so great, as to prevent it from sucking. After two or three attempts at suction, it gets livid in the face, and quits the breast in coughing. Now, the reason of this is obvious. In sucking, a child is obliged to breathe through the nostrils, which the stoppage within them prevents: and the moment the infant opens its mouth to inspire, on quitting the breast, the milk in the mouth is drawn by the breath into the glottis, and hence the violent coughing which follows.

Coryza is unaccompanied by cough, because the irritation of the inflammatory action does not extend to the lungs; for cough indicates irritation, either seated in some one of the organs of respiration, or conveyed to it by distant sympathy, and is always to be regarded as an instinctive effort of the lungs to expel something which irritates them. The only circumstance in this affection deserving remark, as far as the respiratory organs are concerned, is the frequent *sneezing* with which it is introduced. Now, sneezing, as the reader may know, is nothing else than a sudden spasmodic and full inspiration, speedily followed by a violent spasmodic expiration, during which, notwithstanding that the greater portion of the air passes out by the mouth, yet, some part of it is forcibly propelled through the nostrils; and the sudden blast, if we may so call it, tends to expel any offending matter lodged there. If the mouth be shut in sneezing, then the whole of the air is forced out by the nostrils. Sneezing, therefore, is, like cough, to be considered as another physiological phenomenon, stationed as a picquet at a vital out-post by a provident Creator, for the protection of life.

Some late writers have considered all inflammatory affections of the mucous membrane of the air passages as identical. In this view we do not concur, and will shortly demonstrate that there are too many well-marked differences between them, dependent on their several organic relations, to admit any thing beyond a general family resemblance.

The first and most prevalent disease characterised by cough, is a common catarrh, an inflammatory disease in its pure form, chiefly confined to the mucous follicles of the lining membrane of the air passages. Catarrh begins with the usual precursory symptoms of fever: the patient feels chilly, wearied, and averse to exercise either

of mind or body ; an uncomfortable sensation of heat over the whole body follows, accompanied with headache and pains in the limbs ; he has no desire for food ; the pulse is quickened, and the tongue coated with a white or brown fur ; a sensation of tightness, and some difficulty of breathing, are experienced in the chest, attended with a cough, which is more or less frequent and troublesome, according to the greater or less extent of membrane affected. At first, the cough is attended with no expectoration ; but as the febrile symptoms abate, phlegm comes to be secreted, and the cough, in consequence, becomes less violent, though, perhaps, not less frequent, in proportion with the copiousness and freedom of the expectoration. In the first instance, the cough proceeds from the state of the membrane : the inflammation which affects the mucous follicles checks the secretion ; the lining membrane of the lungs, therefore, becomes drier than natural, and thus the immediate contact of the inspired air with the now morbidly sensitive membrane, produces irritation by its coldness ; and a retropulsive effort, or cough, is the instinctive consequence. In the latter stages, on the contrary, the cough proceeds either from the acrid nature of the secreted mucus, or from its superabundance. Either of the two circumstances is sufficient to produce it ; for even when the phlegm has lost all its acrid qualities, and becomes bland and copious, it continues to irritate the lungs by its quantity alone, which coughing is excited to expel as it accumulates.

There are two circumstances which often render an accidental catarrh chronic and habitual. The first is, neglect on the part of the patient ; the second, a debilitated state of the mucous follicles in consequence of previous reiterated attacks of the same disorder. Even with a severe catarrh upon him, a patient is enabled to go about after the febrile symptoms have abated ; and, should he have any avocation obliging him to do so, he is apt to neglect the disease in attending to his business. The morbid action thus kept up in the lungs, has no fair chance of subsiding, but the contrary, since continual exposure to the changes of the weather keeps aggravating the complaint ; and if, together with this, the patient be of a broken-down or infirm constitution, or of intemperate habits, a catarrh so neglected is almost sure to become chronic or habitual. If we reflect, for a moment, on the circumstances just noted as tending to render a neglected catarrh habitual, we shall find no reason to be surprised at the fact ; for it is to be recollected, that diseased action is as liable and as obedient to the law of habit, as any other action in the living system to which a part has been long accustomed : in the next place, no disease can continue for any length of time, without altering, more or less, both the organic structure and function of the part in which it is seated ; and, finally, the necessary effect of every active disease is to exhaust, or, at least, impair, the vital powers of the organ affected. Hence, it is the debility of the secreting organs which is the cause of phlegm being so copiously poured out in all cases of chronic catarrh.

The foregoing observations have, by a natural sequence, fully prepared us to understand the nature of what has been called *Pituitous Catarrh*. This form of the affection is especially characterised, as the name denotes, by the copious watery nature of the phlegm that is expectorated ; the quantity of which is sometimes so great, as to amount to a quart in the twenty-four hours. Nevertheless, we are not thereby to regard the difference between common mucous catarrh and pituitous catarrh, in the quantity and nature of the expectoration to be specific, for this is entirely dependent on the difference of constitution of the persons affected ; the pituitous being the form the disease assumes in those of a lax, feeble, or exhausted habit of body, in whom the blood is thin and watery, and the general appearance pale and exsanguine. Constitutions of this character are little liable to inflammations ; and when they do occur, they have a strong tendency, from the laxity of the secreting system, to terminate in excessive secretions and effusions. Hence it happens that dropsy of the substance of the lungs (*Œdema Pulmonum*) is never so apt to take place as in a leucophlegmatic patient attacked with pituitous catarrh. In such a habit of body, we can at once perceive the reason why the inflammatory symptoms of a catarrh should never run high, and how expectoration not only takes place speedily, but also why it is abundant and watery.

No age is exempt from pituitous catarrh ; but from circumstances that are self-evident, we might, *a priori*, infer, what is in fact the case, that children, those of broken-down constitutions, and old people, are most subject to it : the frame of a child is necessarily lax, in order to permit the development of its growth ; and that of old people becomes so in the natural course of its dissolution.

As the inflammatory symptoms in acute mucous catarrh abate, the cough, as we have already observed, loosens as the phlegm becomes more abundant, and the expectoration is brought up with less violent coughing ; it gets thicker, opaque, and of a yellow or greenish colour, and gradually diminishes in quantity, until it ceases altogether. With this progressive improvement, the cough, as a consequence, corresponds ; for, latterly, this symptom is entirely owing to the *sputa* lodged in the lungs, and coughing is but an instinctive effort to expel it.

Such is the ordinary course of acute mucous catarrh occurring in the robust and healthy, when properly attended to from the beginning ; but it is often far otherwise with the disease, when it has been long neglected ; especially in constitutions hereditarily or radically unsound, or broken down by age, or by former often-repeated attacks of the same, or of some other, debilitating malady. In all such cases the disease is liable to change its character on the cessation of the active stage of the inflammation ; the sputa not merely gets thicker, but, by degrees, increases greatly in quantity. This circumstance is thought little of at first, and excites no alarm ; all the while the strength of the patient is insensibly wasting under the abundance of the expectoration ; he becomes gradually weaker and weaker,

more or less rapidly, in proportion to the feebleness of his frame, until it arrives at that pitch that he is obliged to keep his bed : and now it is that the symptoms of immediate danger ensue, which, if not removed, ultimately terminate in his death. In the general debility of the system the muscles of expiration necessarily participate, and this is aggravated in them, more particularly, by the constant exertion of coughing ; the unavoidable consequence of which is, that they cease to be able to expel, by coughing, the phlegm, as it accumulates ; the air-cells first become blocked up, then the smaller air-tubes, until the defluxion, at length, collects in such quantity, as to end in internal or pulmonary suffocation. There is a symptom, connected with this subject, generally known as indicative of great danger, and the very common precursor of death ; and that is, the “*rattles*,” as it is called. Now, the rattles are nothing else than the noise made by the passage of the air through the thick phlegm in the air-tubes, in breathing. The air, from which we draw the “*breath of life*,” not being able to enter the air-cells, on account of their being choked with phlegm, cannot produce that change in the blood, which, in fact, is the sole purpose of its being sent to the lungs, and for which the lungs are constituted essential organs of the vital functions : life becomes extinct, therefore, under such circumstances, as necessarily as from suffocation produced by any other cause. With regard to what is called pituitous catarrh, I have only one remark to make, which the reader may have anticipated, and that is, that in a catarrh originally of this lax and adynamic character, the tendency to a fatal issue is much stronger than in the mucous, and its termination in death more frequently realised.

The same fatal result not unfrequently ensues from the very same cause, in very young infants ; nevertheless, there are certain circumstances peculiar to their tender age and constitution, that modify the *rationale* of it. The frame of a child is the more succulent and vascular inversely in proportion to its age, all the secretions are more abundant, and the excretions more liquid. Such being the case, we consequently find, that when an infant is afflicted with catarrh, the expectoration is always copious,—and in this very circumstance originates the danger ; for until children have attained a certain age and degree of intelligence, they have not sense enough to spit the phlegm out, even when the cough has brought it into the mouth. But, besides this, there is another circumstance we are to recollect, which is, that the same want of intelligence deprives the lungs of the increased power and assistance, which a forcible effort of the will contributes to those more advanced in life, in aiding them to expectorate the *sputa*. Hence, we perceive why phlegm should accumulate in the lungs of infants affected with catarrh, independent of the greater quantity secreted, and why death in many instances should occur solely from want of intelligence to aid the natural efforts to expectorate it.

* “*Pulmones extrinsecus spiritum adducunt.*—CICERO.

Catarrh in children is distinguished from the coming-on of measles by the greater mildness of the febrile symptoms; otherwise, before the appearance of the eruption in the latter, the affection of the mucous membrane of the eyes, nose, and chest, is much the same in both at the beginning.

Some degree of difficulty of breathing attends upon catarrh from its earliest stages, and in its mildest form. This symptom, in the first instance, is proportionate to the tumefaction that takes place in the air-passages in consequence of the inflammation; but as the disease proceeds, the secretion of phlegm necessarily augments the dyspnœa by partially or completely filling the air-cells, as well as the air-tubes, more or less. Now, both of these circumstances operate physiologically in the same way in producing the difficulty of breathing. A thickening of the mucous membrane, whether permanent and organic, or the temporary and casual result of acute inflammation, impedes that change from going on, which takes place between the atmospherical air and the blood, by which the former is deoxygenated: and the like, it is evident, must ensue, if the air be prevented from entering the air-cells, from their being filled with phlegm. It is this latter circumstance, as was said, which gives rise to the rattles in the last stage of the complaint, when the presence of the mucus is rendered loudly audible by the obstruction it presents to the free entrance of the air; but we are enabled, by the aid of an instrument called the stethoscope, distinctly to detect mucus in the lungs at an early stage of the disease, long before it is audible to the unassisted ear.

The stethoscope is the invention of the celebrated Laennec; and its principle of construction is founded on the superior property which solid bodies possess over ærial in the conveyance of sound. No mechanism can well be simpler. It consists merely of a cylinder, usually of wood, perforated throughout; thus forming a tube with very thick sides. One extremity of this hollow cylinder is applied close to the chest, and the other to the ear; when sounds that cannot be heard by the ear without this assistance, readily become audible.

In acute pulmonary or bronchial catarrh, the sounds first rendered to the ear by the stethoscope are ærial, and are either sibilant (whistling), or sonorous and grave; and have been compared, when proceeding from the larger air-tubes, to the note of a violoncello, or the cooing of a dove. Afterwards they are liquid, as soon as phlegm begins to be secreted from the mucous membrane of the bronchi, or air-tubes when the sound becomes *bubbling*, from the air in respiration passing through it. This is called the *mucous rhoncus* by Laennec.

As the disease abates, the wheezing heard in the chest is not permanent; for when the air-tubes are cleared by coughing, it ceases until the phlegm collects again.

In chronic-mucous catarrh, the noise made by the air and phlegm varies according to its intensity, presenting variations in force, fre-

quency, and extent, which sufficiently enable us to recognise the different degrees of this affection.

In pituitous catarrh, the *mucous rattle* is heard over the greater part of the chest, thus showing the extent of the disease ; and few maladies, on this account, are more dangerous than this when it becomes chronic, since, by completely filling the air-cells, it eventually induces slow suffocation.

A person subject to a habitual defluxion on the lungs, in consequence of chronic-mucous, or pituitous catarrh, is at the same time affected, for the reasons already explained, with a constant difficulty of breathing ; but with the turgid and thickened state of the mucous membrane of the bronchi, and the surcharge of phlegm in the air-cells that occur in these diseases, there is often conjoined another cause of aggravation, particularly in the pituitous form of the complaint : I mean oedema, or dropsy of the lungs,—a disease frequently superinduced through the long continuance of the state of vascular engorgement, and the debility of the organ consequent thereon. A person thus affected is said, in common language, to be asthmatical.

When the lungs get into such a diseased state, we cannot wonder that they should be morbidly susceptible, and, therefore, exceedingly liable to catch fresh cold on all sudden and severe vicissitudes of the weather. Now, on this happening, all the old-standing symptoms are very much aggravated, and new ones of a more acute character are superadded. Febrile symptoms are present ; the heat of the skin is augmented, and the pulse quickened ; while the defluxion on the lungs is increased in quantity : and when this is expectorated by the violence and continuance of the cough, the patient feels relieved. This is the *humid asthma* of writers on the diseases of the chest ; but it requires very little reflection to perceive how objectionable the name given to this complaint is, in a pathological point of view. No one will dispute that it is an essentially different disease from pure spasmodic asthma : and, in my opinion, where diseases differ so widely in their pathology, they ought not to bear the same name. Were the impropriety only a nominal one, it would be of no great consequence ; but identity of name is apt to lead the young, unexperienced practitioner, especially, to the belief of identity of nature, and, by this misconception, mislead him greatly in the treatment proper to each.

Cause of Catarrh.

The cause of this disease in all its forms is the same, if we except that variety of it called influenza ; namely, exposure to cold, checking perspiration. This effect of the operation of cold is most certain to ensue from sudden alternations of temperature ; as quitting a hot room to go out into the cold air, and the reverse. Whenever the body is much heated, either the sensible or insensible perspiration, or both, are augmented, and the blood circulates in the vessels with increased activity to their minutest ramifications. Now, it is to be

recollected, that this increase of action and function is not confined to the surface of the body, but is going on with the same activity on the entire inner surface of the lungs.* Hence, though we may prevent the effect of cold in suppressing perspiration on the exterior of the body by additional clothing, we have no such means of avoiding its impression on the interior surface of the lungs.

When we consider the quantity of fluid which is constantly being given off by the lungs and skin in the form of perspiration, and reflect on what must be the immediate consequence of its sudden suppression, we at once perceive that this necessarily must be a state of vascular engorgement and turgescence. But the first effect resulting from the sudden application of cold air to the over-excited state of the mucous lining of the lungs, is the impression it makes upon the nerves of the part. The primary phenomena of inflammation show that the *power* which circulates the blood, and which, indeed, is the same *primum mobile* that sets in motion, sustains, and governs all the functions of the living system, both in health and disease, is the principal, as it is the original, seat of the morbid action. Therefore, we are to understand the sudden suppression of pulmonary exhalation to arise from the impression primarily made on the nerves that govern the function.

Not only are the nerves governing perspiration affected by the impression made by cold suddenly applied when they are in a state of increased excitement, but also those which influence and regulate the circulation. The first and immediate effect seems to be that of depressing the vital power possessed by the capillary vessels to forward the blood,—an effect which, in the first instance, appears confined entirely to the extremities of the veins and arteries. A partial stagnation of blood in the part is the necessary consequence. These are the primary effects of the morbid cause, and are altogether local—the result of the atony induced in the ultimate ramifications of the arteries and veins: the heart and the large arterial trunks yet remain uninfluenced by the morbid condition of their extremities, and the blood is sent to the part diseased in the ordinary proportion. Now, let us revert to what has been just stated as the primary results of the sudden application of cold to the lungs, when in a state of augmented perspiration and increased vascular activity, and we shall be able to explain, I trust, in a plain, intelligible, and satisfactory manner, the hitherto unsettled views respecting the phenomena of inflammation in general. There is a stagnation of the blood in the capillaries, as has been said, and yet the ordinary quantity of blood is still being sent towards them by the larger arterial trunks: the obvious effect of this must be not merely to increase the congestion, but as every point of stagnation offers a point of resistance, it follows, as a mechanical consequence, that the impulsion of the recoil must return

* To prove to the general reader how much the lungs naturally perspire, it is only necessary to recal to his recollection the visible form the breath assumes on a frosty morning. What is then visible is nothing but the natural exhalation from the lungs, condensed by the cold.

to the heart as the original instrument of the propulsion. The heart, we know, is an exceedingly sensitive organ, and when the state of stagnation is considerable, stimulated by the retropulsive shocks, it is excited to stronger and more frequent contractions ; the increasing energy of the heart again reacts with augmented force on the debilitated capillaries : and in this way we have instituted one of the most characteristic symptoms of inflammatory fever—a strong, full, and frequent pulse : it becomes strong and frequent, from the augmented energy of the heart's contractions ; and it is full, from the engorged state of the blood-vessels consequent on the retention of the matter of exhalation. It were foreign to our present purpose to follow out the other phenomena of general inflammation, and expound the *rationale* of their origin ; reactive influence ; the connexion of the increase of heat with the frequency of the respiration and the quickness of the circulation, &c. : but, before leaving the subject, we may cursorily show how it happens that the above phenomena are often averted from ensuing, provided the condition of the lungs and state of the constitution generally be healthy. For instance, the plethora, or over-fulness of the blood-vessels, proceeding from a sudden retention of the watery parts of the blood thrown out by pulmonary exhalation, and produced by the impression of cold, is frequently got rid of by an increased action of the kidneys. Another common result of this healthy condition of the general system is, that the nerves affected by the morbid impression often recover from their state of atony, before the local plethora has had time to accumulate so greatly as to be capable of reacting on the heart and larger arterial trunks, and thus induce constitutional disorder ; and, therefore, it is obvious the moment the equilibrium of action is re-established between the capillary system and the heart and larger arteries, or, in other words, between the quantity of blood supplied to the minute arteries, and issued by the capillary veins (an effect resulting from the nerves of the part recovering from their atony), all danger of inflammation, ensuing in consequence of the impression of cold, ceases. It is scarcely necessary to add—for the inference is itself-evident—that it requires a certain degree and extent of stagnation in the capillary system before this can react on the heart ; and hence it is that there are many local inflammations that neither influence nor at all disturb the general circulation.

Though the sudden alternation of temperature be the most common cause of catarrh, nevertheless the circumstance of alternation from heat to cold is not necessary to produce the disease ; and it is a mistake to think it essential. Long exposure to cold, by which the body becomes completely chilled, is sufficient to cause the disease without any alternation at all ; such as riding outside of a carriage in a cold, raw day ; or sitting up late at night, as not unfrequently happens to studious people, after the fire has gone out. Frequently too deeply absorbed in what occupies their attention, they are only awoke to a consciousness of the circumstance by the severity of the general chill pervading their feeling ; and the next conviction is, that

they have caught a cold. The person feels this before he has had time to alter the temperature ; and, therefore, the disease institutes itself without the aid that sudden warmth adds to the reaction resulting from the recoil of the impulsion produced by the local stagnation of the blood in the capillaries. The allusion, however, which has been just made to the sudden application of warmth, suggests the further remark, that, as the indirect effect of the capillary congestion is to stimulate the heart to more powerful action, so the direct operation of the alternation from cold to sudden heat is to produce the same result. Heat, when excessive and sudden, always quickens the pulse, whatever be the state of the system, and, therefore, readily advances the inflammatory progress of a cold.

Of the Treatment of the various Forms of Catarrh.

The review we have taken of the theory of inflammatory action, will very much prepare us to understand the *rationale* of the treatment proper to be adopted for its removal.

At the beginning of acute catarrh, when, through the different reactions already explained, inflammatory action is fully established in the mucous follicles, there is nothing we can have recourse to, with greater certainty of benefit, than an active aperient. The therapeutic operation of purgatives in this disease, affords a beautiful illustration of the doctrine of the tissues.

If we examine into the intimate sympathy existing between similar, though distant, tissues, we shall find that they are all subject to the same forms of diseased action ; and that this sympathetic law of the system is not limited in its agency to the propagation alone of morbid associations, since it extends its reciprocity of influence likewise in a healing point of view ; and we hence find *those medicines the most efficacious which more particularly operate on a tissue similar to that which is the seat of disease*. Now, in the instance of catarrh, it is the mucous membrane of the air-passages that is affected ; and it is the mucous membrane of the intestines on which purgatives principally act. The therapeutic connexion between the tissue diseased and the tissue principally operated on by medicines has not hitherto been pointed out ; or, if alluded to, it has never been sufficiently insisted upon. I am therefore desirous, on this account, of drawing a moment's attention to the demonstration of its correctness, by a few observations. For instance, we see the fact exemplified in that inflammation of the eye called *conjunctivitis* ; and though in all the inflammations affecting the other tissues of this organ purgation be useful, yet in none is it so manifestly beneficial as in the inflammation of its mucous tunic. We find purgation not less eminently useful in *mycleritis*, or inflammation of the mucous lining of the nostrils—*coryza*, as it is more commonly called. It proves equally efficacious in inflammation of the mucous lining of the fauces (*faucitis*) ; in inflammation of the tonsil (*tonsillitis*), which is nothing else

than an agglomeration of mucous follicles; and not less so in catarrh. To prove by contrast the correctness of the position I am endeavouring to establish, I may slightly allude to the fact, that we do not find purgation useful, but the contrary, in the inflammations which affect the other tissues of the lungs. It is of no benefit in pneumonia, or that inflammation which affects the parenchyma, or substance of the lungs: neither is it useful in pleuritis pulmonalis, or the inflammation of its serous envelope. But the subject is too fertile, and capable of too extensive amplification, to be fitting for discussion on the present occasion.

There are effects, however, resulting from the operation of purgatives, which are frequently of great service, and are quite distinct from those which result from identity of tissue. One of the direct and most obvious indications for the employment of purgative medicines is the evacuation of the contents of the bowels: the fæces themselves often become a secret source of very general irritation, either by their undue retention or altered nature; and, in either case, purgation obviously does good, by the removal of the irritating cause.

Purgatives, again, may be made to act as powerful evacuants; and thus to operate as direct sedatives in reducing excessive action. Bleeding is rarely requisite in catarrh, unless when complicated with inflammation of the pleura, the substance of the lungs, or with a strong determination of blood to the head; and, as purgation abstracts only the watery parts of the blood, it often becomes a more desirable means in certain diseases, and catarrh is among the number, of diminishing the quantity of fluid current in the circulation than the more direct means of venesection. It is a loss from which the system much more readily and speedily rallies, than from the direct abstraction of blood itself; in illustration of which, we cannot cite a more striking proof than what happens in Asiatic cholera. Here, though the abstraction of the serosity of the blood by the bowels be at times so prodigious as actually to render the blood viscid, yet we may all have witnessed with what astonishing rapidity patients recover from this extraordinary loss of its more liquid parts.

The purgatives most to be preferred in the first, or acute, stage of catarrh, are the saline; to which may be added, a little of some of the cathartic tinctures or infusions (Nos. 1, 2, 3, and 4).^{*} There is one peculiarity and advantage possessed by the saline purges,

* (1) R Infusi Sennæ, ℥x.; Tart. Potassæ, ℥iv.; Mannæ Opt. ℥ij. Solve. Deinde adde Tinct. Sennæ, c. ℥ij. M. Sit haustus aperiens.

(2) R Magnesiae Sulph. ℥iv.; Mannæ Opt. ℥ij.; Tinct. Jalapæ, ℥ij.; Aquæ font. ℥x. Solve et M. Fiat haustus aperiens.

(3) R Pulp. Tamarind. ℥ss.; Potassæ Supertart. ℥j.; Sodæ Tartar. ℥ij.; Aquæ bullientis, ℥v. Colat. Adde Aquæ Cinnam. ℥j. Autim. Tart. gr. ss. M. Sumat tertiam partem, et repetatur dosis post horas duas, nisi alvus prius respondeat.

(4) R Magnesiae Sulph. ℥vj; Infusi Rosæ, ℥jss. Solve.

which is, that, however powerfully they may operate, they are not apt to excite inflammation in the bowels. Another advantageous circumstance is, that they are more antiphlogistic than any other class of purgatives, producing not only a much greater chilliness on the surface, but likewise a similar feeling in the bowels. By the effect which purgatives produce in lessening the quantity of blood circulating in the capillaries, they allow these vessels to contract to their natural dimensions, and diminish, as another consequence, the quantity of heat evolved; thus abating, at the same time, two of the principal morbid phenomena of inflammation—the augmented temperature, and the vascular turgescence.

When the operation of the purgative has ceased, and the capillary vessels have recovered from its derivative effects, and again become congested, though in a lessened degree, we are next to endeavour to remove the remaining hæmostasis, by opening the exhalents by diaphoretics. In slight cases of catarrh, a gentle perspiration may be excited by bathing the feet in warm water at bedtime, and taking afterwards a teaspoonful of antimonial wine in some warm white wine whey; or the draught below, marked(5).^{*} When the affection is severe, the patient ought not only to confine himself to the house, but to his bed, and excite and keep up a gentle perspiration by occasional doses of a diaphoretic mixture(6),[†] or the saline draught, aided by some other sudorific(7).[‡]

The manner in which diaphoretic medicines prove beneficial, is mainly by re-establishing the equilibrium of the circulation. When perspiration is equal and general, the capillary vessels are liberated from all congestion by the action of the exhalents; for the exhalents are those minute vessels which are believed to proceed from the capillaries, and opening on the surface of the various membranous linings and envelopes of the body, both external and internal, pour out the watery matter of exhalation upon them. This, on the surface of the body or skin, is called perspiration; and on the inner surface of the lungs, exhalation. The laws of hydraulics, therefore, are partly sufficient to teach us the therapia of diaphoresis in these cases.

But this operation of sudorifics has another effect, which is particularly beneficial in the first stage of a catarrh. Acute inflammation at its onset invariably checks secretion, and hence the cough attending catarrh is dry at first, but, if we can succeed early in producing general perspiration, the inflammatory congestion of the mucous follicles is relieved, secretion from them is renewed, and its viscosity is much diluted by the copious exhalation going on in the

^{*}(5) R. Liquor. Ammon. acet. ℥iv; Mist. Camphoræ, ℥vj; Spt. Æth. Nit., Vin. Antimon. aa ℥xxx; Syrupi Tolut. ℥ij. M.

[†](6) R. Antimon. Tart. gr. ij; Misturæ Camph. ℥v; Syrupi Rheados, ℥j. M. Capiat cochlearum amplum omne bihoriâ.

[‡](7) R. Pulv. Jacobi veri; Camphoræ, aa gr. iij; Pulv. Ipecac. gr. i; Confect. Aromat. q. s. Fiat bolus tertiâ vel quartâ horâ sumendus.

lungs. Hence, by perspiration, cough is always loosened, and expectoration made much easier.

Nothing more favours free perspiration than the copious use of warm diluent drinks, and they ought on this account to be taken freely when we wish to promote it. There is even something soothing in their warmth in passing down the œsophagus into the stomach, acting thus after the manner of an internal focus. Barley water, somewhat acidulated with the juice of a lemon, to which a little gum arabic may be added, answers exceedingly well; very thin gruel, flavoured in the same way; white wine whey, or weak linseed tea, may be used for the same purpose.

At first, it is not advisable to prescribe specially for the cough, beyond recommending some bland demulcent, such as a linetus,(8) or a mucilaginous mixture;(9) but as the inflammatory and febrile symptoms abate, we may then safely interfere to remove the cough, and diminish the expectoration. For both purposes, there is nothing so efficacious as opium, or its preparations, in a proper dose, combined with something that will throw its operation on the surface. Dover's powder answers these intentions, or we may conjoin it in the form of tincture, with an antimonial,(10) or in a proper proportion with the mucilaginous mixture.(9)

The cough is usually most troublesome at night, therefore, while the mixture(9) is most convenient for use during the day, the draught(10) is best taken at bed-time.

So much for the treatment of acute catarrh. It now remains to consider that which is proper for its other forms, the chronic mucous, the pituitous, and chronic pituitous catarrh.

Acute mucous catarrh, is almost sure to become chronic by neglect. A cold, attended with cough, if neglected at the beginning of winter, is liable to continue in certain constitutions during the whole season: indeed, I know of no disease liable to such repeated relapses as a cold. Where the constitution is sound, and the cough and expectoration continue, rather from a want of care on the part of the patient, than from any organic disease of the lungs, a little attention on his part, no longer to expose himself to the vicissitudes of the weather, aided by some demulcent expectorant, to which a sedative is conjoined, will ordinarily be all that is required; but when this fails in checking the cough, and diminishing the expectoration,

(8) R Confect. Rosæ Caninæ, ℥ii.; Succī Limonis, Ol. Amygdal, aa ℥ii. M. Fiat linetus.

Another:—R Mellis Opt. ℥ii.; Succī Limon. ℥iv.; Syrupi Tolut. ℥i. M.

Another:—R Emuls. Amygdal. ℥ii.; Confect. Rosæ Caninæ, Syrupi Limonis, aa ℥i. M. Sumat cochl. medium, p. r. n.

The following make an exceedingly good cough drink:—Dissolve half an ounce of gum arabic in a quart of barley water, to which add three dessert spoonful of lemon juice.

(9) R Mucil. Acaciæ, Emuls. Amygdal. aa ℥iii.; Syr. Tolut., Aquæ Cinnamon. aa ℥i. M. Sumat cochl. ij. ampla tusse urgente.

(10) R Tinct. Opii, ℥xv.—xx.; Vini Antimon. ℥xx.; Syrupi Tolut. ℥ii., Aquæ font. ℥x. M. Fiat haustus horâ somni capiendus.

toration, we have reason to apprehend that their continuance is attributable to some other cause than simply a want of attention. There is, in fact, no incidental cause of consumption, unfortunately, more common, than a neglected cold; and thousands die annually of this disease, the victims of their own heedless indifference—but of this more immediately.

Mucous catarrh, when it has become chronic, loses its first characters; the state of congestion in the minute blood-vessels of the mucous membrane and follicles continues, but the nature of the engorgement differs essentially from that of the acute stage. No extra quantity of blood is now directed to the seat of the disease by the arteries, and the stagnation of blood entirely results from the exhaustion and weakness left in the extreme branches of the veins. Since the nature, therefore, of the diseased condition of the parts is completely changed, so likewise must the character of our treatment alter. The antiphlogistic treatment, or that which diminishes and controls the circulation, if adopted in the chronic stage, would, by increasing the debility only aggravate the symptoms; and, therefore, our obvious purpose should be the reverse—that of restoring the lost tone of the part. It is on this account that opium, which is so prejudicial in the first stage of a catarrh, becomes so very beneficial in the second, especially if care be taken to counteract its narcotic operation. Another object should be, so to stimulate the arteries secreting the mucus into the follicles, that, by increasing the quantity of the secretion, it may be rendered less viscid, and thereby more easily brought up by coughing, or in other words, more freely expectorated. Now, the medicines which appear best to promote this intention, are squills, ammoniacum, the balsams, myrrh, and certain of the fetid resins. These, variously combined, form often very efficacious expectorants. (11, 12, 13.)

There is strong reason to believe, that certain medicines exert a specific operation on the mucous membrane of the lungs. Of this character are ammoniacum, myrrh, squill, and some others, which increase the quantity of the secretion; while, on the other hand, there are other substances that check the secretion of mucus when too abundant, and of this nature are the balsams and turpentine. But, in saying this, I beg not to be misunderstood. They lessen the expectoration, not by checking it through any astringent operation, but by restoring the healthy tone of the secreting vessels. The

(11) R Macil. Acaciæ, ʒii.; Mist. Anmon. ʒiii.; Syr. Tolut. ʒi.; Acet. Scillæ, Tinct. Opii, aa ʒii. M. Capiat cochlearium amplum ter quaterve in die.

(12) R Mist. Ammoniaci, ʒvss.; Vini Ipecacuanhæ, ʒiss.; Tinct. Galbani, Oxy mel. Scillæ, aa ʒss.; Syrupi Tolut. ʒi ss. M. Sig. Cochl. duo 4tis horis sumendum.

(13) R Pulv. Scillæ, gr. x.; Gum. Res. Myrrhæ, ʒj.; Gum Res. Ammon. ʒss.; Syr. Tolut. q. s. Contunde simul intime, deinde divide in pilulas, xxiv. Duæ omne nocte et mane capiendæ.

Or. R Pulv. Scillæ, ʒj.; Extr. Hyosc. ʒj.; Tart. Antim. gr. i. Fiat pil. xx. Sig. Duæ nocte et una mane sumendæ.

effect of opium, again, is that of diminishing all the secretions indiscriminately, excepting that of perspiration.

Some explain the expectorant operation of squill, by its power of promoting absorption, which, by diminishing the quantity of fluid poured out, thus facilitates the expectoration of the remainder ; but this manner of accounting for its effect does not appear to me anywise satisfactory. Absorption of the more liquid parts would render the remainder only more viscid and tenacious, and therefore more difficult to expectorate. On the contrary, squill, in my opinion, has a direct stimulant effect on the mucous follicles of the lungs, which not only lessens the secretion in quantity, but causes it to be separated in a more liquid and natural form. That squill operates as a stimulant on the pulmonary mucous tissue, is proved, on the one hand, by its injurious effects in all acute inflammatory affections of the lungs ; and not less so, on the other, by its efficacy in the chronic stage of the disease, of which we are treating.

Myrrh appears not less determinate in its specific operation on the mucous tissues, pulmonary as well as others, for it is frequently prescribed with great benefit in amenorrhœa, combined with iron, and its *modus agendi* in this case appears to be intimately connected with its stimulating effects on *the vessels of the mucous lining* of the womb. The same specific tendency shows itself in the medicinal properties of all the balsams—they are deemed remedial only in affections of the same tissue, whether pulmonary or genito-urinary, attended with relaxation.

The determination I speak of, is proved, not only by the remarkable efficacy of these substances, in many cases wherein the mucous tissue is the seat of the disease, but, also, by the corroborative circumstance of our being able to detect their passage out of the body, by one of the mucous membranes,—that of the lungs. This fact is rendered no less undeniable than sensible, by their tainting the breath with their peculiar odour. It would appear, therefore, that they enter the blood unassimilated, and are again excreted by the exhalents of the lungs, without their medicinal principle having undergone much, if any, alteration. Of this nature, are ammoniacum, copaiva, balsam of Tolu and Peru, myrrh, galbanum, and assafoetida. We know that a circumstance precisely similar, and more demonstrative still, takes place in the kidneys, wherein analysis enables us to detect various substances in the urine, that have passed unchanged through the circulation : hence, it is not unreasonable to infer, that it is in their exit through the mucous membrane of the lungs, the expectorants here spoken of exert their medicinal powers, and thus prove remedial in its diseases.

We have but few observations to make on those forms of catarrh, known as the puitous and the infantile.

With regard to the first, we have already stated our opinion, that it differs in no respect from mucous catarrh, but in what is ascribable to the nature of the patient's constitution. It is evident, that, from the debility which characterises this complaint, even in its acute

stage, we are prohibited from controlling the vital powers by a use of the same means to the same extent, as in common mucous catarrh affecting the naturally robust and healthy. This is a stage also, which lasts but for a short period, is easily subdued, and readily passes of its own accord into the second or chronic stage. In the first instance, therefore, the disease requires us to employ with great circumspection and moderation, the means which were pointed out in the treatment of acute mucous catarrh; and to adopt with less reserve, and more diligence, those recommended for the removal of its chronic form. As the only difference between pituitous and mucous catarrh, rests in the state of the patient's constitution, and not in the essential nature of the two diseases (for in that I believe them to be strictly identical), the treatment proper to both, is the same in principle, requiring only modification. I may merely observe, that, in addition to the expectorants already noticed, we may in some cases call in the aid of digitalis. This is the only expectorant that seems to act as such, by promoting absorption. Chronic pituitous catarrh, we have mentioned, goes by various other names, *humoral asthma*, *dyspnœa aquosa*, *catarrhus senilis*, in all of which, the lungs are deluged with watery mucus. Now, digitalis in this disease, appears to act beneficially, by exciting the absorption of the more fluid portion of this mucosity, thus relieving the difficulty of breathing, and the irritation and constant coughing to which its great accumulation gives rise. However, there is a certain degree of caution required in the use of digitalis in pituitous catarrh, lest it should depress too much the already too enfeebled vital powers; and the best way that I know of preventing this effect, is to direct its operation on the kidneys. (14, 15)

Chronic pituitous catarrh of old standing, is for the most part accompanied with dropsy of the substance of the lungs (*œdema pulmonum*). In such cases, the absorbent virtues of digitalis become our sheet-anchor; and, both with and without this ordinary concomitant of the disease, I have, at times, seen much benefit derived from the astringent and tonic powers of small doses of the sulphate of zinc.

The same may be observed of the treatment of infantile catarrh which has been said of the pituitous: it, too, owes its peculiarities to age and constitution. It has already been remarked, that the frame of a child is lax, and abounding in juices; therefore, when an infant of very tender age, is affected with mucous catarrh, the afflux of phlegm into the air-tubes and cells, is often so great, as to suffocate the infant from its accumulation—an event which is likewise accelerated by the weakness of the voluntary powers at this early period of life, and the want of sufficient intelligence to exert them.

(14) R Fol. Digit. purp. ʒi.; Aquæ ferventis, ʒviiij.—Post horas duas cola, deinde adde Spt. Ætheris Nitr. ʒss. et. M.—Capiat cochl. amp. ij. 4tis horis.

(15) R Fol. Digit. purp. gr. vi.; Supert. Potassæ, ʒii. M.—In chartulas vi. dividendum, quarum sumat unam ter in die.

The same not unfrequently happens in very old people, from sheer exhaustion and debility. Now, what are we to do in such cases? Nature cannot assist us, in either instance, of her own accord; but, fortunately, we have one auxiliary in reserve, and that is, an expectorant which acts on a mechanical principle—I mean an emetic. I have repeatedly witnessed the life of an infant saved from the imminent danger of instant suffocation, through the action of an emetic. By its operation, all the expiratory muscles, both voluntary and involuntary, are thrown into strong convulsive action, and thus it happens, that the mucus in the lungs comes to be ejected simultaneously with the contents of the stomach.* In conclusion, I have only further to observe, that though infantile and senile catarrh resemble each other in the abundance of the phlegm poured into the lungs; with this, the resemblance between the two diseases ceases: the former is an acute inflammatory affection, obliging us to resort to active antiphlogistic measures for its relief, which, if employed with a similar energy in the latter, would be most injurious.



CHAPTER II.

OF CONSUMPTIVE COUGH; OR, PHTHISIS.

As consumption very frequently begins with a cold, and at first is generally mistaken for it, the preceding observations on catarrh seem naturally to lead us to the consideration of this prevalent and very fatal disease. A difficulty hence arises at the outset, to detect its real nature from the trivial character of the incipient symptoms. But if such obstacles present themselves to the experienced physician, towards an exact knowledge of this insidious malady at its commencement, how much more difficult is it for the patient to suspect its nature on its aggression, when we even see him, though on the very brink of the grave, still unconscious of all danger, and indulging in projects for future accomplishment!

In the observations that follow, the author does not pretend to propound any novel views respecting this untractable malady: he will be satisfied if, by strictly adhering to the facts that are best ascertained, he succeeds in laying down that plan of treatment most in accordance with a rational theory of the phenomena, and which a cautious experience has best justified by results.

The great difficulty to a clear understanding of the real nature of the disease, is the obscurity which envelopes its commencement.

* The contents of the stomach, by the way, often consist entirely of mucus, which the child had swallowed.

Cough, in the first instance, is simply a catarrhal symptom, and cannot, as Andral observes, safely be depended upon; for, though it very commonly begins as a cold, yet it happens not unfrequently that patients are unable to attribute its origin to any precise period, or particular circumstance, whatever.

One of the first symptoms leading us to suspect the real nature of the disease, is the extreme liability of the patient to the frequent recurrence, on the slightest occasions, of a short dry cough. At first there is no expectoration, except little frothy phlegm; the breathing is slightly impeded, a sense of tightness felt across the chest, and the pulse somewhat accelerated. If on repeated attacks of these symptoms we perceive the patient gradually become emaciated,* and the cough more troublesome on every successive attack, we have cogent reason to conclude, especially if the disease be hereditary, that these apparently slight attacks of cold are, in fact, the incipient symptoms of consumption.

The disease may go on in this way for some time, without making much apparent progress, but its continuance can never be relied upon, and ought not, therefore, to be neglected: for while, on the one hand, we have known the disease in this state to be protracted for years; on the other, consumption will, at times, run through all its stages in the space of a very few weeks.

As the disease progresses, the cough becomes more troublesome, especially at night and in the morning; the expectoration increases in quantity, and alters by degrees in its character: it gets more viscid and opaque, not unfrequently streaked with blood; and finally assumes a greenish, purulent appearance. In the meantime, the emaciation increases with the languor and debility, and also the difficulty of breathing. The cough is now no longer short and hicking, but strong and violent—an alteration which proceeds from the inflammation of the lining membrane of the lungs pervading the whole extent of the air-tubes: but the part where the greatest uneasiness is felt, is about the larynx and upper portion of the trachea. This, undoubtedly, is caused by the long continuance and violence of the cough, and not unfrequently ends in ulceration. Sometimes blood, instead of merely tinging the sputa, is spit in abundance; pain is felt under the breast-bone, which is aggravated by coughing, or lying on one side: though in some cases no pain is experienced, only an inability to lie on the side affected. At first, the pulse is not much quickened, but as the disease advances, and the expectoration becomes more and more abundant, it gets full, hard, and frequent; the palms of the hands and soles of the feet suffer from a sense of burning heat; febrile exacerbations come on in the evening, and shortly assume all the characters of hectic; the urine deposits a copious red sediment on standing; nevertheless,

* It was from this symptom that the Greeks called this disease *Phthisis*, which signifies extenuation, or leanness, from *phtheo*, to dry or cause to dry: a symptom which is more certainly diagnostic, in my opinion, of consumption, in its incipient stage, than any other.

the tongue continues clean and moist, and the appetite good. But as the disease goes on progressively advancing, the inroads it makes on the constitution become every day more apparent ; the eye gets blanched, and assumes a pearly lustre—it sinks deep into the orbit ; the cheeks are hollow ; their bones, in consequence, appear prominent ; and towards the close of the disease, as the substance of the lungs is expectorated, the chest falls in : a circumscribed flush on one or both of the cheeks is observable during the hot stage of the hectic ; and, after a feverish and restless night, profuse perspirations break out towards morning, when the exhausted patient usually falls asleep. In the beginning of consumption, costiveness very usually prevails ; but in its latter stages, a colliquative looseness comes on, and greatly augments the general debility and emaciation : the hair falls off, and the nails become curved ; a dropsical swelling of the ankles supervenes on the daily increasing exhaustion ; at length the extremities become cold, the pulse ceases to beat, and death puts a period to the disease.

Such is the ordinary progress and termination of consumption. Let us now proceed to an examination of what has been ascertained to give rise to this train of symptoms—the formation and development of what have been named *tubercles in the lungs*.

Pathogeny, or the doctrine of the primary causes of disease, is one of the most interesting subjects of medical investigation ; and not more important than difficult. With respect to tubercles, which, in fact, form the essential disease in consumption, we are still in the dark as to the precise nature of the morbid action by which they are produced : their primary character, even, as a morbid product, is not perfectly ascertained. Andral deems the rudiment to be a minute portion of secreted fibrin ; Gendrin, a small clot of effused blood. That simple inflammation cannot of itself form tubercles is abundantly well established, since many persons pass through life, after having suffered numerous attacks of inflammation of the pulmonary tissues, without their ever inducing tuberculous formations or depositions. The generation, therefore, of tubercles in different parts of the body, has been ascribed to what is called diathesis—the tubercular diathesis : a mode of elucidation, by the way, which goes very little, if any thing, beyond the enunciation by a learned term of the fact it pretends to explain.

The latest account given of tubercles is by Rochoux, from observations made with the microscope.

The word tubercle, according to its modern acceptance, is used to designate a morbid production, or deposit, of a rounded form, variable in size, consistent, composed of a grayish white matter, at first semi-transparent, latterly opaque, which, after a time, softens and dissolves into a creamy mass. This is the regular character of a tubercle, and the progress of change just detailed has obtained the name of “ ripening.”

Tubercles, at their commencement, are usually described as small grayish bodies, nearly opaque, or, at most, semi-transparent, some-

what solid, and about the size of a millet-seed ; but M. Rochoux, in our opinion, has satisfactorily demonstrated that this is more correctly to be viewed as the second, rather than the first stage of the existence. If we examine the tissue of that part of the lung in the immediate vicinity of a dense and opaque tubercle, at a superficial glance the lung appears perfectly sound ; but, when more intimately investigated, it will be found to contain tubercles in their real incipient state. An incipient tubercle, according to this minute observer, exists in the form of a small gelatinous body, not more than the tenth of a line in diameter, having a pearly lustre, and susceptible of presenting all the intermediate shades between pearly gray and the colour of jelly slightly tinged red. Cut through the middle, its substance is seen to be perfectly homogeneous, and without the slightest trace of blood-vessels.

However small tubercles may be, they are never altogether liquid. When they have attained the tenth of a line in diameter, they have assumed a distinctly rounded form, and adhere to the adjoining tissue by a multitude of very minute filaments, which break by the slightest pull ; the broken extremities of which form round the tubercular molecule a sort of tomentum, like eiderdown. Rochoux has not been able to detect by the microscope any enveloping cyst, as averred to exist by Bayle and others. The filaments spoken of above are so thick and numerous, that if a tubercle, in this early stage of its formation, be put into water, it appears lost in the midst of a kind of cloud : on again removing the tubercle from the water, these downy filaments, which floated in the liquid, collapse, and the central molecule again becomes visible.

As a tubercle enlarges, it undergoes a notable change in its colour ; and the shining gelatinous appearance gradually fades, and is replaced by a dull gray. But a question of considerable difficulty arises, how to account for their enlargement. The apparent absence of all vessels in tubercles, or of any vestige of organization, has led to the very general rejection of the idea that they enlarge by nutrition. It is thought by some, that they grow by external accretion. According to Rochoux, on the contrary, they increase in size by successive degenerations of the healthy structure from a morbid action of the formative function of the part : by which he means, that, when this takes place, from whatever cause, as the olden structures of the body are continually being absorbed and reproduced, the new one formed in its stead by the formative function is tuberculous. And hence, Rochoux infers, that if this process can go on at one point of the lungs, it can, for the same reason, show itself in many thousands of others ; and that, in fact, it is by the agglomeration of several tubercles, seated close to one another, that large tubercular masses are formed.

There is one strong circumstance stated by Dr. Carswell, to exemplify which I had leave to copy from his work on *Morbid Anatomy* the plate in the frontispiece ; namely, “ that tuberculous

matter is in general formed, *ab origine*, on the secreting surface of hollow organs, where it is seen as distinctly as if it had been thrown into them from a syringe." Tubercular matter has likewise been found in the lymphatics and lacteals, in mucous follicles, and even in the blood-vessels. Now, it is not possible to conceive, according to the known laws of physiology, how tuberculous matter, when so situated, can be aught else than either a deposition or secretion; since, under such circumstances, it never could have been the product of its own organization.

It is a fact, that has been long generally known, that different tubercular masses, when situated close to each other in the lungs, are visibly separated from one other before they agglomerate by thin laminæ of cellular membrane; and the question is, What becomes of these after the different tubercles have coalesced, and before they soften? It is difficult, and very improbable besides, to imagine that it becomes assimilated to tuberculous matter; and if not, are we to say it is removed by absorption, without admitting, at least, interstitial vascularity? For my part, as far as admitting this goes, I see no reason for refusing to do so. I am aware, that some believe that they have been able distinctly to see their proper vessels; but, until they can show me them organizing tubercular matter thrown out on the surface of a hollow organ, I must still retain the opinion that a tubercle is an unorganized deposition. We are, therefore, I apprehend, at present only warranted by facts to conclude, whenever we find blood-vessels pervading tubercular masses, that they are merely organized vestiges, appertaining to the interstitial cellular membrane of the part, and not properly to the tuberculous matter itself.

But it must, after all, be confessed, that the question is still freely open to much further research, and that we may safely wait for better ascertained data before we form decided opinions on the subject. Nevertheless, this circumstance may not altogether preclude us from investigating those phenomena attendant on the morbid process, which our knowledge enables us to discuss more satisfactorily.

The researches of pathology are every day throwing more and more light on the subject of inflammation, and establishing the circumstances that modify its phenomena; among which, none are better ascertained, or more undeniable, than the influence of tissue and structure on the character of symptoms: but not less powerful, in this respect, is the particular constitution of the patient. Under this latter head are comprised the various changes which the different periods of life and the difference of sex give rise to; the deteriorating operation of previous disease; and in an especial manner, as referable to our present subject, the original innate conformation of the system.*

* It is to the peculiarities of original conformation that the terms *idiosyncrasy* and *diathesis* apply.

There are various circumstances tending to demonstrate, in the tubercular diathesis, *a feeble conformation of the capillary system*. This constitution of the frame (the tubercular) is denoted, externally, by two different and opposite complexions. In the one, the skin is fair, clear, delicate, and florid; the eyes are blue, large, and full; the hair is fine, silky, and light-coloured; the external veins are large; the neck is usually small and long; the shoulders prominent; and the chest narrow. There is great natural sensibility; the cast of character frequently is pensive and mild; and the want of animal vivacity is evinced in the quiet, sedentary, and retired habits of the individual. In the latter, on the other hand, the complexion is not clear; on the contrary, it is dull: neither is it fair, but often the reverse; the cheeks are for the most part colourless; there is no great sensibility, and the mind may rather be said to be sluggish than sedate. In both, the muscles are soft and flabby.

Now, it is our intention to show that this constitutional, lax, and feeble condition of the capillary system, is intimately connected with tubercular formations; feebleness, more especially, characterising their state in the florid: while laxity prevails in the dull complexion. And there are certain outward tokens of this condition of the capillaries which may again be briefly adverted to, in corroboration of its existence and connexion with a consumptive tendency.

It is the vascular system, as every physiologist knows, that forms the body out of the elements of the blood; and it is the extremities of the arteries, which, from their resemblance in minuteness to a hair, are called the *capillary* arteries, that are the active agents in the construction of it. When, therefore, the entire arterial system is vigorously formed, as the actual agent of growth, it is obvious that the whole constitution of the body must naturally partake of the efficient character of the agent; and it is almost supererogatory to add, that a feeble and relaxed condition of the same system must equally impress its character on its works. Now, in the predisposed to consumption, what is the fact? Is not the skin descriptive of this character, thin, and, therefore, florid, in some, because the blood can be readily seen through it; and fair, from the delicacy of the layer (*rete mucosum*) which imparts to it its colour? In others, on the contrary, the skin is dull, scurfy, and dirty-looking; arising, as we conceive, from the lax texture of the extreme cutaneous vessels by which they perform their function, not only feebly, but impurely. The growth of the bones not less clearly denotes the debility of the formative office of the capillaries; the figure is slender and indelicate, and the chest is imperfectly developed.*

These may fairly be assumed as undeniable data. Let us now try to apply them to the elucidation of that obscure and difficult problem

* Strumous persons are particularly liable to chilblains: another proof of the feeble powers of the capillary system in this diathesis.

in pathology, the primary formation of tubercles. We have before noticed the change which the meaning attached to the term inflammation has undergone since its essential characters have been better understood. Not only is it admitted that the principal seat of its phenomena is in the capillary arteries and veins, but also that a partial stagnation of the blood they contain, takes place; and we further know, that the operations of inflammatory action, in a sub-acute form, are often so obscurely indicated by symptoms, particularly in structures possessed of no great natural sensibility, such as the substance of the lungs, that frequently it is by its effects alone we are enabled to determine that it has existed.

Now, the opinion we have formed of the primary origin of tubercles is this, that when the natural conformation of the capillaries is of the texture described as characterizing the tubercular diathesis, causes so slight as frequently to escape notice, or more usually still, repeated colds, are sufficient both to produce, and leave in the capillaries of the lungs, a state of hæmostasis identically the same as that characteristic of more energetic inflammatory action in other constitutions. Modified, however, by their own lax and feeble nature, and likewise somewhat, perhaps, by the texture of the blood, the phenomena which result in consequence of this partial stagnation, differ from those which ordinarily take place: a matter of gelatinous appearance is poured out from the different points of a congestion, forming thus, as it appears to us, those primary rudiments of tubercles, discernible only by the microscope, and first described by Rochoux.

The effect of hæmostasis, however induced, is to cause a fluid to be effused of a nature varied according to that morbid action giving rise to it, the tissue in which it is seated, and the diathesis and habit of body, especially, of the person it affects. In certain cases this possesses a watery consistence and character, from the little albumen it contains; in others, the albumen so abounds that it readily coagulates of its own accord, and is prone to organisation; while, in the consumptive diathesis, if Rochoux's observations be correct, it appears in the form of jelly, having no tendency to become organised,* but, by a spontaneous change it is capable of undergoing, is convertible into that matter we designate "tuberculous."

There are numerous circumstances present in the diathesis alluded to, which evince that there is something peculiar in the blood of the consumptive. Dr. Carswell, among others, entertains this opinion. "It is necessary to remark," observes this discriminating writer,† "that the formation and manifestation of this matter (the tubercular), as a morbid product, cannot take place, unless the fluid from which it is separated—the blood—has been previously modified." But whether this be conceded or not, there cannot be a doubt that the separation of so much albumen from the blood in the abundant de-

* When it does so, it is only under rare and particular circumstances.

† Morbid Anatomy, art. "Tubercle."

positions of it in the lungs and elsewhere, cannot fail to alter the nature of the latter in a very material degree;* and it is a fact ascertained by its artificial abstraction, that in the hectic stage of consumption, though the colouring matter (hæmatosine) be sufficiently abundant in the blood-globules, there is a considerable deficiency of fibrin.

If, then, it be so probable that a gelatiniform matter, having no ready aptitude to assimilate to blood, is formed by a peculiar morbid state of chylification, we cannot wonder at finding it separated in the form of a rudimental tubercle in various organs of the body in this diathesis; that is, as a gelatinous point, such as it is described by Roehoux. The great tendency which this substance has to separate itself even from the chyle before it enters the blood, appears to be demonstrated by the fact, that the lacteals on the hither side of the conglobate glands of the mesentery are not unfrequently found filled with tuberculous matter. Now, whence comes this alteration? The blood cannot well be supposed to alter itself; we are, therefore, of necessity referred back to the original source of this fluid for any peculiarity it may possess, and there, I apprehend, we shall find it: we shall find it, in reality, in the first processes of sanguification, or, to speak more definitely, in a diathetic peculiarity of the digestive function in forming the original elements of the blood; that is, the constituents of the chyle.

Evidences are becoming every day more circumstantial and numerous, to make it more and more probable that the original source of many diseases, hitherto imputed to particular organs, arises from a vitiated condition of the function of chylification. Diabetes, I conceive, comes under this head, and so does gout. Saccharine matter has been detected in the blood of the first of these diseases: and uric acid, or, at least, its base, urea, abounds in the blood of the other,—both principles that are formed in inordinate proportions, in my opinion, in these two diseases, originally in the chyle.

That tuberculous matter is an elementary secretion from the blood, and not the product of any formative process of the secreting vessels, appears to me evident from its being found in so many hollow organs. Dr. Carswell has an observation to the point on this matter:—"a healthy secreting surface, says this writer, may separate from the blood not only the materials of its own peculiar secretion, but also those of tuberculous matter. Such is, indeed, what takes place in the air-cells. The mucous secretion of their lining membrane accumulates where it is formed: but it is not pure mucus; it contains a quantity of tuberculous matter mixed up with it, which after a certain time is separated, and generally appears in the form of a dull yellow, opaque point, occupying the centre of a gray, semi-transparent, and somewhat inspissated mucus."†

* Tubercular matter has been ascertained to consist chiefly of albumen, with various proportions of gelatine and fibrin.

† Morbid Anatomy.

The bulk of the facts in evidence on this interesting and important subject, appear, then, to render probable, if not fully establish, the following, as the manner in which tubercular matter is originally formed and deposited:—it would seem that, by a diathetic peculiarity of the function of chylication, which may be either hereditary, or induced in the digestive system by a concurrence of morbid influences, a matter is generated which, on entering the blood, does not assimilate with this fluid, but exists in the circulation as an extraneous body, and that, by a process which has many analogies, both in the healthy and morbid physiology of the living system (the process which cleanses the blood of impurities, by throwing them out of it), it is separated by the secreting vessels sometimes into the cells of the cellular membrane of organs, and there concretes into what we call “tuberculous matter,” or into the open tubes and cavities they may contain; at other times, so strong, it would appear, are its tendencies spontaneously to separate itself from the chyle in the lacteals, and even from the blood itself, that it is found in the vessels of both.

I once met with a well-marked case of the expectoration of a transparent gelatiniform matter in a patient affected with all the symptoms of incipient consumption. He had a frequent short cough, tightness and pain in the chest, and difficulty of breathing. The sputa was always streaked with blood on the accession of a fresh cold, to which he was exceedingly liable; and there were distinctly discernible in the thin, frothy phlegm that he expectorated, small round globules, of a pearly-coloured transparent jelly. He had, besides, all the external characters of a strumous constitution: his skin was thin, and exceedingly fair; his eyes were light, and had a dull and watery lustre; and his hair was red. Was the gelatinous-looking substance he expectorated, the rudimentary matter of tubercles that had been secreted into the bronchi and bronchial cells? This patient was an officer in his majesty’s service, and, with these symptoms upon him, went out to a foreign station between the tropics, where he recovered.

Before closing these remarks, we have only one more to make on tuberculous formations; and that is, that while the great influence of an unhealthy condition of the blood in the production of tubercles must be fully admitted, its agency, in this respect, is, nevertheless, to be accepted purely in a secondary sense. We are to recollect, that sanguification, itself, is a process intimately associated with the integrity and healthiness of vascular action, and the fact, if further considered and followed out, will lead us back to the original proposition with which we started—the influence of the constitution of the capillary system in the production of tubercles. It is the juices, we all know, secreted by the chylopoietic organs, that effectuate perfect and healthy digestion. The qualities of the blood, therefore, if traced to their source, are entirely derivable from vascular action; for, since all secretion is performed by the capillary vessels, it is evident that the first essential operation in the

process of sanguification, which is digestion, is entirely dependant on the nature of their action ; and, on the other hand, the state of purity of the blood no less depends upon the integrity of another capillary function—we mean, the due action of the exhalents. Candour, notwithstanding, obliges us, in conclusion, to acknowledge that, with all the attention we may have given to the investigation of the subject, and however feasible the foregoing exposition of the phenomena may seem, the question of the primary formation of tubercles is still involved in very great difficulty, doubt, and obscurity.

The matter first expectorated, in consumption, consists, as has already been observed, simply of phlegm ; but when the tuberculous depositions soften and burst into the air-tubes, this matter appears mixed with the sputa in the form of a whitish curd.

Tubercles do not soften through the operation of any inflammatory action set up within themselves ; and, therefore, the process bears no analogy with that which produces the dissolution of cancerous tumours of an encephaloid nature. There is no previous formation of a network of arterial capillaries, under whose exalted action, according to the interesting observations of MM. Recamier and Berard, this operation is accomplished ; neither do I believe it to ensue from any spontaneous change taking place in the composition of the matter itself ; on the contrary, I am disposed to believe, with Dr. Carswell, that it arises from the imbibition of fluid matter, as serosity, pus, blood, &c. furnished by the surrounding tissues.

When the tubercles are dissolved in this manner, and thus come to be expectorated by coughing, it not unfrequently happens that streaks of blood, proceeding either from a ruptured vessel, or ulcerated surface, appear in the sputa ; and if the vessel from which it flows be larger, the quantity of blood which is spit up is sometimes considerable.

Softened tuberculous matter, though often puriform, is not purulent ; and any pus that is mixed with it, proceeds from the ulcerated surface surrounding it, or from some cavity already left in the lungs after the evacuation of a mass of tuberculous matter that had previously undergone dissolution.

However, there is another source from which pus proceeds, especially in the latter stages of consumption, and that is, the trachea and the larynx. The quantity of matter produced by the softening of numerous tubercular masses is often very considerable, and by its constant flux into the air-tubes, it necessarily excites and keeps up, a continual violent coughing. Now, the consequence of this frequently is, to produce inflammation, particularly in the wind-pipe and larynx, which, eventually ulcerating, from the severity and constancy of the cough, thus furnishes matter for expectoration of a purely purulent nature. The inflammation often extends still higher and affects the fauces and tongue : hence the latter, though moist at first, now assumes a deep red hue and becomes parched : a thrush, very commonly in this stage of the disease, breaks out on

both ; and as the small vesicles burst, they leave the surface of the tongue and throat ulcerated.

Deaths from consumption are most numerous between the ages of 20 and 30, and 30 and 40, the proportion being 23 out of 100 between these two periods : its frequency is not much diminished between 40 and 50, the proportion being 21 ; after which it decreases inversely with the age, and the same result holds good under 20. The period most fatal in children is from four to five.

With respect to the morbid appearances found after death, I shall but barely allude to them.

The lungs of those who die consumptive may be found in one of the three following states in regard to the development of tubercles: Firstly, In some very rare instances they have been observed to be disorganised by tubercles but yet in their incipient stage, that is, in the form of gelatine. In the second, which is much more usual, the tubercles have attained the period of crudity ; none existing in the first stage. The first state is, likewise, very common, in which the tubercles are very advanced, ripe, softened, or even replaced by cavities ; while in other portions, the lung is studded with tubercles in every intermediate degree of development between that in which they first become perceptible and their successive progression to full maturity. The substance of the lung surrounding a tubercular excavation is usually found indurated. Marks or scars of the healing of a tubercular excavation are sometimes observed in the lungs, establishing the fact that occasionally the cavity heals up after the tuberculous matter is expectorated.* It is the upper portion of the lungs that is most liable to this morbid deposition ; and Louis makes the remark, that whenever tubercles are found in other organs, they invariably exist at the same time in the lungs.†

We have already noticed the ulcerations to which the wind-pipe and organ of voice are subject ; but, whether from sympathy of tissue or otherwise, ulcerations are likewise frequently found in the mucous lining of the intestines. Indeed, it is to this determination of the morbid action that the looseness occurring in consumption is to be traced, a symptom which invariably indicates inflammation of this membrane or its glands in the first stage of the disease, and ulceration of them in the latter. The last is very frequently met with in the large intestines, and almost always at the ileo-colic valve.

* Dr. Hope has shown in his work of *Morbid Anatomy*, that tubercular cavities may heal in one of the three following ways,—Firstly, by the interior walls of the excavation getting covered by a healthy membrane of a mixed fibro-cellular or fibro-cartilaginous nature. Secondly, by the agglutination of the sides of the cavity, as is shown, at times, by a fibro-cellular line in which the air-tubes are found to terminate abruptly ; and, Thirdly, by a gradual thickening of the parietes, filling up the excavation with a fibro-cartilaginous substance.

† Laennec gives a schedule of the organs and parts most subject to tubercular deposits, in the following decreasing order of succession :—The Lungs, Bronchic Glands, Mediastinal Glands, Glandulæ Concatenate, Mesenteric Glands, All the other Conglobate Glands, Liver, Prostate Gland, Peritonæum, Pleura, and, least of all, the Voluntary Muscles.

Of the Diagnosis or Manner of Distinguishing the Disease.

One of the most lamentable of the circumstances connected with consumption, is the impossibility of distinguishing by any of the means hitherto discovered, the actual existence of tubercles in the lungs at a period when such a knowledge would be of the most importance—I mean at their first formation. Both by the resonance yielded on percussing the chest,* and the signs obtained by stethoscopy, we are enabled to recognise, with a satisfactory degree of certainty, the middle and latter stages of the malady; but, unfortunately, it is not the same with tubercles in a nascent state, for the entire texture of the lungs may be studded with thousands without the most delicate *auscultation* being capable of discovering their existence.† It is, therefore, only candid to declare that, as yet, it is impossible to recognise consumption at its commencement.

Even in the more advanced stages, tubercular consumption is, in certain instances, difficult to be distinguished from chronic inflammation affecting the air-tubes, attended with dilatation. Many of the leading symptoms are common to both: purulent matter is expectorated, there is great wasting of the body, violent cough, much difficulty of breathing, and profuse night perspirations. If we appeal to the stethoscope to decide our doubts, we are often not much enlightened by the information it affords; for the sounds rendered by the breathing and voice, both in dilatations of the air-tubes, and when tubercular excavations exist, are so similar, that we are unable to determine from which they proceed. In such doubtful circumstances, “it is only by attention to the progress of the disease,” as Dr. Williams has judiciously observed, “that it can be discovered that it is not phthisical.”

The signs by which we ascertain the precise nature of the diseases of the lungs, are the symptoms, the sounds rendered on percussing the chest, and those of respiration and the voice made audible through the medium of the stethoscope. We have enumerated at length the symptoms of consumption: it remains for us to point out the *physical signs* of the disease. When the tubercles are so small as not to encroach upon the air-cells, no alteration takes place in the natural respiratory murmur, and on percussing the chest the lungs retain their resonance; but as soon as the tubercles enlarge and consolidate, both the murmur and resonance are destroyed, *broncophony*‡ is heard at the arm-pits and under the collar-bones, and bronchial respiration.

* The cavities of the lungs, in a healthy state are always more or less distended with air; when the chest, therefore, is gently tapped with the ends of the fingers, a sound is rendered similar or rather analagous to that obtained on striking a hollow vessel, as a barrel. This has been called *percussion*, and was first conceived and practised as a means of ascertaining the state of the lungs by Avenbrugger, and afterwards perfected by Corvisart.

† Auscultation is the listening to the sounds made in breathing, through the hollow cylinder called the stethoscope.

‡ Broncophony is the resonance of the voice heard in the chest on speaking.

In the second stage of the disease, that is, when the softening of the tubercles takes place, sounds are heard which differ somewhat in proportion as the tubercles become more dissolved : at first it is crepitant, then gurgling and mucous.

In the last stage, or when the matter has found its way into the air-tubes and is expectorated, an ulcerous excavation is formed in the lungs, and the cough and respiration become cavernous,* and *pectoriloquy* is heard,† but if the matter be not all évacuated from the cavity, its presence combines the mucous rattle with the cavernous resonance. If the excavation be near the surface of lungs, then the stethoscope gives what has been called the *blowing respiration*.‡

Of the Causes of Consumption.

The causes of consumption may be comprehended under three heads :—

Firstly, the Inherent ; secondly, the Predisposing ; and, lastly, the exciting Causes.

By the first, we mean that which is hereditary, or transmitted to us at conception by one or other of our parents.

The analogy of all nature bears out the undeviating constancy of the fact, and we may take in the range of the whole of the animated creation without finding one general exception to the rule, that “*similis similem parit.*” The hereditary transmission, therefore, of a *diseased tendency*, is the natural consequence of the hereditary transmission of a morbid conformation ; and if this have its seat, in particular instances, in the extreme vessels of the lungs, we thus have the *apparatus* of a peculiar diseased action ready prepared for any casualty that may set it in operation. This plain exposition of the nature and origin of hereditary disease shows how much more extensive inherent, or, more correctly speaking, innate morbid tendencies are, than what is ordinarily acknowledged or understood by the term “hereditary.” Cataract is known to be capable of descending through several generations ; so are calculous disorders : several cutaneous diseases, cancer, mania, a tendency to apoplexy, gout, water in the chest, and tonsillitis, run in families ; hysteria and hypochondriasis are often transmitted diseases ;—all of which, and many more that might be enumerated, originate from different peculiarities of congenital conformation, and are, therefore, strictly diseases of inheritance : indeed, there are few that may not be made to become so, more or less.

* Cavernous respiration is similar in sound to that heard on applying the stethoscope to the anterior part of the neck.

† Pectoriloquy is the sound of the voice heard as if issuing from a cavity completely emptied ; but to be diagnostic it must exist only on one side, for if heard on both, the sign becomes doubtful, since the greater probability is that it proceeds from dilated air-tubes.

‡ In the blowing respiration, the breath of the patient seems to *blow* into the ear of the auscultator in expiration, and to draw it out again in inspiration.

If no casualty intervenes during life, powerful enough to excite into activity the original unsound conformation of a part, then it happens that the person escapes the disease that perhaps caused the death of his father ;* but as he, if he have children, transmits the same structure to his progeny which he himself inherited, we thus see how the latter come to be obnoxious to that very disease from which their parent escaped, only through a fortuitous good-luck. The term "*germs of disease*," when applied to the constitution, signifies therefore no more than inherent structure, in most instances ; and hence, in using the expression, they (the germs) may more properly be said to be dormant than latent in the constitution.

How far this peculiar morbid structure, which tends to the formation of tubercles, can be induced by previous disease, remains for further investigation to determine. The question, at the outset, is embarrassed by another, that requires to be previously answered : namely, Whether or no, when the inherent tendency to tubercular formation is slight, the morbid disposition be merely favoured and strengthened, not actually induced, by the preceding disease ?

With regard to the predisposing causes of consumption, they all ultimately resolve themselves into whatever debilitates the body generally, or the lungs in particular ; and they appear to operate entirely by favouring the deposition and development of the rudiments of tubercles. Hence, excesses of all sorts, previous diseases that injure the constitution, poor and unwholesome diet, deteriorating the quality of the blood, &c., are common causes of consumption. The disease is more frequent among women than men ; and repeated child-bearing and suckling can often be traced as giving rise to it. Indications of the scrofulous habit are usually mentioned as a predisposing cause of consumption ; but this is, in fact, but another term for the tuberculous diathesis. It is nothing but tubercular matter that is deposited in the glands of the neck, which causes them to swell and suppurate ; and the same may be said of struma, in whatever situation or form it may appear.

Climate appears distinctly to exert a predisposing influence on the prevalence of consumption, as is obvious from the frequency of its occurrence in the central parts of the temperate zone than in either extreme, north or south : it is comparatively rare in the polar regions, and also between the tropics.

Humidity has been imputed as a predisposing cause of phthisis, but without good reason. It is not a common disease in Holland, where the soil is marshy, and where canals abound ; neither is it remarked to prevail more in the fenny than on the high lands of Lincolnshire ; neither, as I have just observed, is it of frequent occurrence between the tropics, where, conjoined with great heat, there is always much humidity : it is also ascertained to be less common on the coasts than inland. Indeed, sheltered places by the sea-shore, in

* This law is often further interrupted in its course and tendency by the progeny having the conformation, or constitution, as it is more familiarly called, of the parent, free from any particular hereditary taint.

the southern parts of England, are often those purposely resorted to by the consumptive invalid. We are, therefore, to reject the idea that humidity exerts any predisposing influence in producing consumption.

Among the exciting causes are to be enumerated catarrh, and the causes producing catarrh ; but both the one and the other operate only indirectly. Of the latter of these causes, there can be no question of their indirect nature—such as wet clothes, damp beds, sudden and severe changes in the weather, &c. ; and with respect to their consequence, or catarrh, I am disposed to regard it in the same light. It is not during the active inflammatory stage of this disease, in my opinion, that the tubercular rudiment is generated ; but in the state of capillary debility and congestion that afterwards ensues. There are various facts which demonstrate that simple inflammation has no special power of producing the formation of tubercles, since many people are affected with catarrh, attended with severe cough, almost every winter, and yet never become consumptive. Again, the tissue of the lungs immediately surrounding incipient tubercles shows none of the vestiges of acute inflammation ; and when, in some few rare exceptions, we happen to find the neighbouring substance of the lung inflamed, it is always at a more advanced period of the disease, and as a consequence induced by the tubercles themselves, or the long continuance and violence of the attendant cough.

The great liability of the consumptive to catch cold is mainly attributed, in the first instance, to the inordinate sensibility of the lungs, proceeding from their hereditary morbid organization ; and we can readily conceive that this excessive degree of susceptibility will not be lessened, but the contrary, as soon as tubercular depositions take place. These two circumstances, I apprehend, will be quite sufficient to explain why repeated colds should so commonly precede the first cognizable signs of consumption.

We have already noticed the fact, that certain periods of life are more liable to consumption than others ; the greatest mortality occurring between the ages of 20 and 30, and 30 and 40. Under the first age, the body has not attained the period of its full size and stature ; and, until then, the capillary system appears to be endowed with an increased degree of activity : but, as soon as the growth of the body is completed, the extreme vessels lose this extraordinary portion of their power, and, sinking down to that which is natural to their structure, they become liable to a state of hæmorrhæmia, if that be naturally feeble. The precise period when these vessels subside into the comparative state of inertia we speak of, necessarily varies with the difference of constitution of individuals ; and, at the same time, the accidents capable of setting in motion the elements of the morbid action, are not less uncertain in the time of their occurrence, and, therefore, render the period of its appearance equally indefinite. These two circumstances of constitution and casualty are perfectly competent, we conceive, to account for the

period of the greatest mortality, taking in a range of twenty years ; that is, from 20 to 40. After the latter age, the frequency of the disease diminishes in a ratio with the years. Indeed, an advanced period of life is itself to be taken as presumptive evidence of no tubercular disposition existing in the constitution ; since the chances are, that long before this, some casualty or circumstance would have called it into action.

Of the Treatment of Consumption.

In the observations which follow under this head, we do not profess to put forth any novel plans of treatment : our aim will rather be to point out the therapeutic means which have been observed to be most beneficial, based on, and sustained by, the views we have taken of the original nature and primary cause of the disease.

We unfortunately possess no certain means, as I have before observed, of ascertaining the existence of tubercles in the lungs, when they are in their rudimental state ; and the fact cannot be imputed to medical men as a fault, seeing they declare themselves by no symptom by which their existence can be recognized. Their semi-liquid consistence and minute size (for it requires a microscope to detect them) offer no obstruction, in this state, to the functions of the organ they inhabit : the breathing is free, and there is no cough. But when tubercles advance a stage further—when they enlarge, and get more solid, then it is that they manifest their presence by trespassing on the hollow structure of the lungs, and deranging their natural functions, that of expanding freely to the ingress of the air inhaled. When, therefore, we observe in any one of a family prone to consumption, the slightest symptoms indicating an affection of the lungs, our imperative duty is to meet them on their first approach, and at once oppose their further progress, if possible ; for against such an insidious and fatal disease we can never be too watchful, or too soon on the alert.

The treatment of consumption hence obviously divides itself into two periods—that proper to the disease before the softening of the tubercles, and that applicable to it when softening has taken place. With regard to preventive means, the observations I have to make on this head will be best considered as we proceed, and will be found incorporated in the sequel.

When consumption was regarded as a pure inflammatory complaint at its commencement, which it was when less perfectly understood than at present, physicians were in the habit of recommending and practising repeated small bleedings. We find this was the treatment adopted in the times of Dover and Morton : the first recommending it in his *Ancient Physician's Legacy to his Countrymen* ; the second, in his *Phthisisologia* : but the injurious results of this practice caused it to be abandoned long before the *rationale* explanatory of its impropriety was understood. Bleed-

ing, in incipient consumption, may remove the congestion of the capillaries for the moment, and thus afford temporary relief ; but, by directly increasing debility, the congestion soon returns, and in a greater degree than before.

When the hydrocyanic acid was first introduced into practice, it was much lauded by certain writers for its efficacy in consumption ; but more faithful experience has shown how much its virtues in this disease were overrated. This fact affords another beautiful illustration of the dependence upon, and connexion between, therapeutics and physiology, both natural and morbid. From the ascertained efficacy of hydrocyanic acid in some of the diseases of the lungs, it was inferred that it would prove equally so in consumption : but, though this acid possesses the property of lessening sensibility and irritability, the power appears confined in its operation to the mucous tissues, diminishing their morbid sensibilities, as well as the irritability of the muscular fasciculi with which they are, for the most part, closely conjoined. Hence, this medicine has been found exceedingly serviceable in numerous asthmatic cases, hooping-cough, *tracheal* phthisis, and chronic bronchitis ; all of which are affections of, or intimately connected with, the mucous tissues : but, as I just observed, it is a medicine exerting no such efficacy in consumption. And why ? Because the mucous tissue of the lungs is not the original seat of the disease.* But there is another reason for this, independent of the one just given ; and that is, that hydrocyanic acid possesses no power of controlling the force of the heart, and, therefore, exerts no direct influence on any part of the circulatory system. This fact is fully established by an experiment of Sir Benjamin Brodie's. This distinguished surgeon and experimental physiologist killed a cat, by dropping a single minim of the oil of bitter almonds on its tongue. On opening the chest, after breathing had entirely ceased, *the heart was seen still pulsating*, and circulating dark-coloured blood.

Emetics have been employed in the early stage of consumption, and as one of the occasional and rare means of curing this disease before the breaking down and expectoration of the tuberculous matter, we know of none, contributing to this end, on which more reliance can be placed.

The great object of our treatment in the first period of consumption, ought to have almost exclusive reference to the source of the diseased action. Therefore, to relieve the congestion in the lungs, by exciting into general activity the capillary system of blood-vessels, without exciting too much the vascular system at large, should be the main ultimate purpose, according to the views we

*It is on similar principles, I conceive, that hydrocyanic acid often proves so beneficial in dyspepsia, pyrosis, chronic dysentery, and excessive irritability of the womb ; diseases of mucous tissues in contact with muscular fasciculi ; and likewise in abating the irritation and painful itchiness accompanying impetigo, prurigo, and psoriasis, diseases involving in their action the *mucous* tissues of the skin.

have taken of the disease, of all our remedial measures. Now, among the means most immediate and certain, though, perhaps, not the most permanent, of accomplishing this object, is the operation of an emetic. But let us take a more deliberate review of the therapeutic operation of emetics in consumption, than by a bare allusion to it.

One of the first and most obvious effects of vomiting, is the concussion the action gives to the whole frame. It is from the universality of this concussion, and the tendency it has to equalize the blood's distribution thereby, that emetics are often found so beneficial in local stagnations and determinations of this fluid ; and it is upon this principle that we partly explain the benefit accruing from their use in cases of incipient consumption.

Emetics have likewise a powerful influence in promoting absorption. This is an effect resulting from their action independent of that of the general excitement they occasion ; and the *rationale* of it appears to be this.—After the casual contents of the stomach have been evacuated, the effect of an emetic on this organ is to cause a sudden and considerable increase in the quantity of the ordinary secretions poured into it, and, in consequence of this sudden requisition, the absorbent vessels, it would appear, are put in demand to supply it. It is in this way, that we account for the diminution and final disappearance both of solid and liquid tumours from different parts of the body under the repeated operation of emetics ; and as another analogous fact, demonstrative of this principle, we may cite the rapid absorption of fat which takes place from all parts of the body in cholera, occasioned by the demand made on the absorbent system by the vast evacuations that occur in this disease both from the stomach and bowels.

Another beneficial effect resulting from the operation of emetics is, that, on vomiting ceasing, exhalation is found going on more freely : hence, those exhalent vessels which open into the air-cells of the lungs, in participating in common of this effect, relieve by their action the congestion of blood in the extreme pulmonary arteries and veins, by draining off a portion of the fluid they contain.

Emetics, it may lastly be observed, if gentle in their operation, give strength to the whole of the digestive organs : hence, digestion is often vigorous after vomiting, and in a disease wherein the effect of diet is so influential as in consumption, we at once see the advantage likely to accrue from any thing rendering the food as little an irritant as possible, an effect which the process of digestion itself remedies by removing it,—that is, by digesting it.

Emetics which act quickly and without producing much previous nausea are those to be preferred. (14, 15) The effect of

(14) R Sulph. Zinci, Pulv. Ipecac. aa gr. v. M. Sit pulvis emeticus.

(15) R Sulph. Cupri, Pulv. Ipecac. aa gr. v. M.

If these operate freely of themselves, it is not desirable to give much drink to provoke any continuance of their action.

nausea is to diminish, in a strongly marked manner, the action of the heart and the general force of the circulation. Now, however desirable this result may be in all those affections wherein the inordinate strength of the circulation forms a leading and destructive feature of the disease, it is an object we have no reason for wishing to accomplish in consumption, seeing we can attain the stimulation which the action of vomiting distributes over the whole capillary system without this depressing precursor. The state of stimulation ensuing from vomiting is evinced externally by the redness of the skin, and by the perspiration which sensibly bedews the head, neck and chest in particular, as well as by the feeling of glow which pervades the entire surface of the body.

The emetic may be repeated every second or third day for two or three times, and its use then intermitted for a week or ten days. But it is necessary to bear in mind, that there must be no pain in the chest present when we prescribe this practice, for as this, for the most part, indicates active inflammation, the concussion of vomiting would only aggravate it.

In the incipient stage of consumption, sponging the chest every morning with pyroligneous acid and water is of great service.(16) The parts should afterwards be rubbed perfectly dry with a coarse towel, so that the friction, as well as the stimulus of the lotion, may excite the activity of the minute vessels on the outer surface of the chest.

Another powerful means of equalizing the circulation, and thus relieving local stagnations of blood, is that of promoting insensible perspiration. Among the medicines prescribed with this *modus agendi* for their object, the tartarized antimony, and sarsaparilla merit a preference. That they do promote insensible perspiration is undoubted, but their manner of effecting it is not quite so obvious. In the present state of our knowledge it is a matter which we cannot discuss satisfactorily, since it embraces the yet undetermined subject of the special power of the extreme arteries to perform a part of the circulation separate from the heart; it involves the question, how far an obstruction to the circulation in a particular part, does or can affect the whole capillary system? and it no less includes the yet obscure subject of the dependence which the evolution of heat on the surface has upon the electrical changes which are supposed to take place at the point where the blood alters from an arterial to a venous character. These are the complicated considerations upon which depend the solution of the manner in which the exhalents become liberated through the medicinal influence of any substance acting as a diaphoretic. However, of the most important fact connected with the subject, there is no question, viz. the release which is brought to the blood congested in any part of the capillary system through the operation of sensible and insensible perspiration.

(16) R Acidi pyrolignei, Spt. Vini tenuioris, aa ℥i.; Aquæ font. ℥vi. M. Fiat lotio.

With the superior advantages of treating consumption on this plan, we were early impressed, from observing more recoveries under it, while employed during the late war at one of the largest hospitals in England (Haslar), than we have ever done since; and more lately, Dr. Giovanni di Vittis, physician of the Military Hospital at Capua, bears similar testimony to its efficacy. This respectable physician states, in the "*Annali Univ. di Medicina*, Dec. 1832," that between the 1st of May, 1828 and the 28th of January, 1832, 47 patients affected with consumption in the first stage, 102 in the second, and 27 in the third, or last stage, had left the hospital perfectly cured by taking a tablespoonful of the following mixture morning and evening:—

R Antim. Tart. gr. iij.
Syr. Caryoph. $\bar{5}$ i.
Decocti Malvæ, $\bar{5}$ v. Solve et M.

Rice diet was allowed, and barley-water given for drink. If vomiting did not ensue, the dose was repeated, provided the patient was not too much reduced.

The practice of di Vittis, we perceive, is to provoke vomiting as well as promote diaphoresis. At Haslar, our measures were confined to the latter, giving the antimony as below.(17)

Next in efficacy to tartarized antimony as a mild diaphoretic, is sarsaparilla, and it is often judicious practice to combine both it and the antimony together. Sarsaparilla by itself creates appetite as well as promotes insensible perspiration, and is especially applicable when we have reason to think our patient convalescent.

It not unfrequently happens, particularly when the disease advances unchecked by any of the means employed, and the tubercles increase both in size and number, that symptoms of inflammatory irritation arise requiring some immediate measures to subdue, or, at least, abate, them. We have already expressed the great necessity for caution in having recourse to bleeding in every stage of this disease; but if the patient be tolerably strong, and the pulse and other symptoms indicate an acute degree of action, we will be justified in resorting to leech-bleeding. Blisters have been employed under the same circumstances, but the judicious observation of Dr. Williams, that "blisters frequently rather add to the irritation than allay it," accords with our own experience in this matter, and that the counter-irritants which produce pustular eruptions are to be preferred. A sedative pill, compounded of conium or hyoseyamus with camphor and a minute portion of tartarised antimony, as prescribed below, may likewise be taken night and morning with advantage.(18)

No subject connected with consumption has occupied more atten-

(17) R Antim. Tart. gr. j.; Syr. Tolut. $\bar{5}$ j.; Aquæ font. $\bar{5}$ v. M. et solve. Sumat æger cochl. ampla duo 4ta quâque horâ.

(18) R Extr. Conii vel Hyoseyami, $\bar{5}$ j.; Camphoræ, gr. x.; Antim. Tart. gr. i.; Contunde et divide in pilulis, xx. Sig. i vel ij nocte et i mane capiendum.

tion than that of climate ; and, allied so closely as it is with cuticular and pulmonary transpiration, we cannot better introduce it for review than when treating of matters embracing this consideration. The marked influence which climate has in the development of the tubercular diathesis, and how much more this morbid tendency prevails in one zone than another, has already been noticed, and the fact would seem to show that neither heat nor cold, simply, even though extreme, is sufficient to cause the production of tubercles, *provided neither be liable to sudden and frequent vicissitudes*. It is this last circumstance, it appears to us, which makes the influential difference between the middle part of the temperate zone, in which consumption is a prevalent disease, and the arctic and torrid zones, in which the disease is comparatively rare.

We have also pointed out in what manner these vicissitudes act on the capillary system of the blood-vessels, and both facts and reasonings have already been adduced to show how much this department of the circulation is concerned, both directly and indirectly, in the formation of tubercles. Now, the principal object of change of climate, as a remedy in consumption, is to avoid those sudden variations of the atmosphere—variations which are so active, not merely in the primary production, but also in the increase and multiplication of tubercles afterwards, for I may here repeat, that the disease we call consumption is nothing but a tissue of symptoms developed by tubercles, from their first recognisable existence when they begin to interfere with, and derange the function of breathing, to their dissolution within the lungs, and progressive expulsion in this state in the form of expectoration. In these few words is contained the whole pathological definition of consumption.

Several parts of Europe, particularly the south of France and Italy, have obtained repute as affording protecting asylums against the assaults of this fatal disease ; but we regret being compelled to say, after having visited them all, expressly for the purpose of examining into the fact, that the numberless *memento moris* we met with in the way, showed how little the character given them was to be relied upon.* Montpellier, once so much resorted to, is subject to great and sudden changes of temperature. The town stands on a hill, and when the north-east wind, or "*bise*," as it is called, blows, it is more chilling and cutting than even that in England. The same observation applies to Marseilles and Nice, though, perhaps, not quite so forcibly. The wind, when it comes from this direction, blowing over the snows and ice which cap the Savoy Alps, gets chilled without becoming moist, and when the body is exposed to it, it literally pierces to the bone. It is this same wind, which the Tuscans descriptively call *Tramontana*, that makes Florence also objectionable as a residence for the consumptive ; fogs likewise prevail in autumn and spring, and in winter the air is cold and damp

* For a fuller account of the medical topography of Italy, the author refers the invalid to a "Pedestrian Tour," made by him through that country, published a short time since.

from its vicinity to the Apennines. At Naples, again, besides the *Tramontana*, which blows occasionally, there is another source of irritation more pernicious still to the lungs, because more direct and continuous in its operation,—we mean the fumes of sulphur, sal ammoniac, and choke-damp, with which the volcanic soil all around Naples is constantly impregnating the atmosphere. It is manifest that air imbued with matters so acrid, cannot fail, when respired, to aggravate all diseases of the lungs, and hence we find consumption a very prevailing disease even among the Neapolitans. According to Dr. Ruggiero, deaths from consumption form a fifth part of the bills of mortality in Naples. The impurity of the atmosphere is ever sensible to the nostrils; for the air never has that sweet refreshing aroma which makes an English spring so grateful and fragrant.*

The Neapolitans firmly believe in the infectious nature of consumption, and the state authorities, it would appear, are of the same persuasion, for when a person affected with this disease dies, all the furniture of the apartments the patient occupied is ordered to be burned. This circumstance adds to the other disadvantages of selecting Naples as a residence for this complaint, for the people are very naturally averse to receive a lodger who is so likely to occasion so great an inconvenience.

Many undeniable facts countenance the opinion that consumption does possess an infectious power, though certainly not in the ordinary sense of the word. The breath, we know, of a consumptive person is hot, acrid, and, therefore, irritating; indeed, this is common to many inflammatory affections of the lungs. The breath in a common catarrh is hot and acrid, causing instant coughing in the person inhaling it. Now, if this be its common nature, we cannot well altogether deny the influence of the breath of one consumptive in exciting the same disease in another, who already has its rudiments formed within him. Granting the acrid nature of the breath to be capable of producing inflammation of the mucous lining of the bronchi, it is therefore not so improbable but that the air of an apartment strongly impregnated with the acrid respiration of a consumptive person is likewise capable, by setting up the same morbid action, of favouring and accelerating the development of the tuberculous rudiments that may exist in the lungs of another, if inhaled for any length of time. In this way, and to this extent, we may

* To show the great variations to which the climate of Naples is subject, I extracted the following statement from the "*Giornale delle Due Sicilie*," for October, 1835, reducing the degrees of Reaumur's thermometer into those of Fahrenheit:—

"On the 9th of the month, the thermometer stood at $79\frac{1}{2}^{\circ}$.

"On the 16th it had fallen to $47\frac{1}{2}^{\circ}$

"On the 18th, to 39° , when the summit of Vesuvius was sprinkled with snow, and the mountains of Anella completely covered.

"On the 22d, it had again risen to $64\frac{1}{2}^{\circ}$, thus demonstrating a difference of 40° of temperature in the first nine days, and of $25\frac{1}{2}^{\circ}$ in the succeeding four."

safely admit, I conceive, the infectious property that is so generally ascribed to phthisis by the Neapolitans.

With respect to the climate of Rome, although the soil on which this city stands be also volcanic, with the exception of the quarter Trastevere, it yet bears no resemblance to that of Naples in relation to the gaseous emanations it gives out—the soil around Naples is still in pseudo-volcanic activity, whereas that of Rome is long ago extinct, as regards its volcanic character, and the emanations proceeding from it are those of corruption, not of combustion. Hence the operation of the latter is rather deleterious than irritating, generating those pestilential fevers which annually devastated this celebrated city. In respect to its fitness as a residence for the consumptive invalid, we doubt it much, for it is difficult to conceive that any place, beset with an agency noxious enough to beget an endemic, can, under any circumstances, prove a haven of health for the diseased. This is the grand drawback; for, otherwise, the climate of Rome is comparatively steady and mild in winter. On the whole, Pisa, perhaps, may be considered the most eligible station in Italy for the consumptive invalid to fix himself, although even its topography is exposed to many grave objections. Viewing the flat country all around Pisa, extending from the heights behind it, and spreading to the sea, it appears manifest that the greater part must have been gained from the retreat of the Mediterranean. Even now, deep ditches towards Leghorn conduct the waters to the ocean; and the prevailing diseases of the country show its damp and marshy nature. Notwithstanding the authority of a late intelligent traveller (Mr. Mathews), the opinion he gives of the climate of Pisa as a fit residence for the consumptive, must be taken with considerable reservation. There are forms, certainly, of this disease, which sometimes yield under the influence of a moist and bland atmosphere. The coast of Devon founds its claim to preference and selection in our own country on such qualities. But there are other forms of this fatal malady, which, instead of being benefitted by a climate of a humid character, become much aggravated by its increasing the languor and debility, and augmenting the expectoration, at the same time that the hectic perspirations become more colliquative and profuse. To this latter species of consumption, the moist and relaxing atmosphere of Pisa acts like an exhausting pump, and the disease gallops to its goal. According to a census by Dr. Palloni, an eminent physician at Leghorn, one in five of the native inhabitants out of a population of 75,000, die of consumption—a proportion larger even than in England. But of all the places on the Continent with whose topography we are acquainted, Hyeres, a place situated on the coast between Toulon and Luc, appears to comprise the most to recommend it—it is at a considerable distance from any mountainous district; it lies low, and it is near the sea, which tempers the intensity both of the heat and cold. Close in its vicinity we observed garden-peas, in blossom in the very beginning of January.

Fatal experience, however, has abundantly proved that the most

favoured climate is of little avail, saving in protracting life by mitigating the severity of the symptoms, when tubercles have advanced to the stage of dissolution ; and that this advantage, small as it is, is more than counteracted by the loss of those conveniences and comforts which home and the kind solace and never-wearying attention of affection can bestow.

Under such discouraging circumstances, and with so many drawbacks, medical men now wisely prefer recommending their patients, particularly in the incipient stage of consumption, to the southern shores of England ; and when the disease is too far advanced for them to be removed with safety, an artificial climate is made at home, by a due regulation of the temperature of the patient's apartments. Regulated temperature, by means of fires, may be so managed as not to vitiate the air, or render the apartment close. This is not difficult to accomplish when the rooms are large and lofty, the windows properly fitted, and the door so situated as not to admit too large a draught. A double door is of advantage in this respect, and the patient's chair may be further protected by a skreen. A room, it may be observed, only becomes close by the fire not being kept brisk ; for vivid combustion keeps the air of an apartment constantly changing, by consuming it ; whereas, when a fire is kept low, its own smoke, from want of draught, finds its way into the room, instead of passing up the chimney : and hence, apartments, with chimneys that draw well, ought to be preferred.

Conducive, in like manner, to the great object we are to keep in view, that of promoting, and guarding against any check to, insensible perspiration, is a proper attention to clothing. The feverish heat, so liable to vex consumptive patients, is apt to cause them incautiously to relieve themselves from the feeling by clothing themselves too lightly, especially if the weather itself be warm ; but it is evident that nothing can be more imprudent in so changeable a climate as ours, and in a disease attended with so much susceptibility as consumption.

Of a similar character, in its healthy and remedial effects, is exercise. "Exercise, as we have observed elsewhere,* if not too violent, strengthens the body, imparts tone to the powers of digestion, promotes all the secretions and excretions, gives vivacity to the circulation of the blood, and tends to *remove its morbid congestions*." From the excessive excitability of the frame, exercise, in consumption, should be of the gentlest description ; and sailing, swinging, and airings in an easy carriage, are of this kind. But, independent of the effects of the motion, there is another advantage derived from exercise that changes the scene, which is—the impetus given to thought by the sight of various objects, as they present themselves to interest the mind. This is one among the other good effects derived from travelling. The general character of the consumptive is a sensitive and contemplative turn of mind, prone to

* "Analysis of the Leamington Spa."

admire the beautiful, and susceptible of an exalted moral feeling, but with a deficiency, at the same time, of animal activity, and a feebleness of action in the vascular system, which, though easily stimulated, is as easily fatigued. Now, travelling offers ever-varying opportunities of calling forth the natural sensibilities of the mind, on the one hand ; while the exercise consequent upon it, if not carried to excess, diffuses a healthy activity over the system at large, on the other. Our own country abounds in scenery and objects of the greatest beauty and interest, and these the invalid can visit without any domestic sacrifice—the friends dearest to him may be able to accompany him, and his home is never far distant.

Another consideration, of great moment, in the incipient stage of consumption, is the proper regulation of the diet. We have had repeated occasion to remark, that extreme susceptibility is characteristic of the consumptive habit ; and keeping this circumstance in mind, together with the frequent necessity we have in the day, and every day, for food, we must at once see the importance of regimen in the treatment of consumption. Food taken into the stomach gives rise to a certain degree of vascular excitement in all constitutions, no matter how robust and healthy ; and this excitement is, *cæteris paribus*, always the greater in proportion to the natural susceptibility to stimulation. No observance, therefore, requires more attention on the part of the patient than the regulation of his diet ; nor is any negligence more hurtful to his recovery than the disregarding it.

Andral mentions some curious facts illustrative of the influence of particular foods on the tendency to tubercular formations. He tells us that, among the carnivorous animals, tubercles are much more rare than among the herbivorous. It has likewise been remarked that the cows of Paris, which are constantly fed on dry hay, instead of feeding on fresh pasturage, are almost all attacked with tubercular consumption.* It is a disease common among the islanders of the South Pacific, among the inhabitants of La Haute Auvergne, Piemont, and Savoy, whose only diet is vegetables ; and, from this circumstance, it has been inferred, that the nature of the food and the disease were consequently connected : but that vegetable diet, alone, is not sufficient to cause tubercles is satisfactorily proved, in our opinion, by the fact that consumption does not prevail among the Brahmins.

Long experience has established a preference to a milk diet, in consumption, over all other foods. Of all aliments, it is the least stimulating ; and, during its use, the pulse becomes slow and full ; the tone and contractility of the muscular fibre are diminished ; and there is always a degree of languor and disinclination for exercise after partaking of it. Cabanis, one of the most philosophical of the modern French writers, observes—“ Fresh and pure milk acts upon

* The monkey tribe are exceedingly liable, in this country, to die of consumption, which I am inclined to attribute to their inhaling so much their own exhalations in the close rooms in which they are kept.

the whole system as a sedative : it moderates the circulation of the fluids, and disposes the moving fibres to repose." Milk has been placed between the foods of the vegetable kingdom and the animal ; but, though an animal product, chemical analysis has been able to discover the curious circumstance that there is no essential difference between it and the fruit of the almond tree (sweet almonds) ; the latter containing exactly the same constituents in a solid form, which compose the former in a fluid.* From the remotest antiquity, this aliment has been in favour with medical men. Oribasius tells us that "milk has two uses—one as a food, the other as a medicine ;" and Trallian, who, of all the Greek writers, appears to have had the greatest faith in milk in diseases of the lungs, emphatically observes, in speaking of consumption—"Not any *medicine* or food is so suited to the patient, or of such service to him, as milk." Asses' milk, next to the milk of the female breast, has been found the easiest of digestion : it contains more sugar than cows' milk, and less cream and cheesy matter : it is, therefore, particularly well adapted to patients whose digestive organs are weak ; but in using it, it is only prudent not to drink any thing acid too soon after having taken it, for this curdles the milk, by coagulating the albumen it contains.†

There are some interesting observations on the chemical constitution of milk by Dr. Prout, inserted by Dr. Elliotson in his philosophical work on "Human Physiology." "Observing that milk," says the former of these scientific physicians, "the only article actually furnished and intended by nature as food, was essentially composed of three ingredients, viz. saccharine, oily, and curdy or albuminous matter, I was, by degrees led to the conclusion that all the alimentary matters employed by man and the more perfect animals, might, in fact, be reduced to the same three general heads.

"It remains to be proved whether animals can live on one of these families exclusively ; but, at present, experiments are against this assumption ; and the most probable view is, that a mixture of two, at least, if not all three, of the classes of nutriment is necessary. Thus, *milk* is a compound of this description ; and almost all the gramineous and herbaceous matters, employed as food, contain at least two of the three—the saccharine and glutinous, or albuminous.

"But it is in the artificial food of man that we see this great principle of mixture most strongly exemplified. He, dissatisfied with the productions spontaneously furnished by nature, culls from

* Almost the only difference between them is, that milk made of almonds and water concretes by heat alone ; whereas natural milk requires rennet, or an acid, before heat will coagulate it.

† Baynard mentions a curious fact concerning this, but, perhaps, in rather a ludicrous way :—"I remember," says this writer, "when I lived at Preston, in Lancashire, a man died with a cheese in his belly, by drinking new milk upon *sour* stale beer, which so frightened people from the use of milk, that all forsook it but the wiser calves !"

every source; and, by the power of his reason, or rather his instinct, forms, in every possible manner, and under every disguise, the same great alimentary compound. Thus, from the earliest times, instinct has taught him to add oil or butter to farinaceous substances, such as bread, which are naturally defective in this principle. Even in the utmost refinement of his luxury, and in his choicest delicacies, the same great principle is attended to, and his sugar and flour, his eggs and butter, in all their various forms and combinations, are nothing more nor less than disguised imitations of the great alimentary prototype, *milk*, as presented to him by nature." Witnessing, as we have just done, the truly admirable manner in which chemistry is capable of illustrating physiology, have we not abundant reason for admiring the justness of Cicero's beautiful observation, that "the arts which have reference to human life have a kind of alliance among themselves, and hold each other, as it were, by the hand."*

When we have cause to suspect that tubercles are actually formed, it is almost needless to say that all exertion of the lungs in singing or speaking for any length of time should be sedulously avoided; and yet, though the necessity for this observance be so obvious, how usual is it to see clergymen, in particular, continuing to perform their sacred duties with lungs that reverberate only the echoes of the grave!

It is by a discriminating and judicious employment of the foregoing means, that we are to endeavour to remove by absorption, the tuberculous matter already deposited, and by counteraction to prevent its further formation. The success occasionally met with, shows that it is possible to produce the re-absorption of this disorganising matter; nay, it is proved by the cicatrices or scars at times found in the lungs, that the cavity which contained the matter can heal up after it is all expectorated. It must, however, be acknowledged that this desirable event is a rare one, as it too frequently happens that, when those morbid deposits, called tubercles, have undergone the process of softening, and having forced their way into the air-tubes, come to be expectorated, all we can do is to palliate symptoms, and protract the period of life.

As soon as ulceration has taken place in the lungs, the preceding treatment requires considerable modification. The emetic plan is no longer applicable, except in the manner pursued by Di Vittis, of Capua, as mentioned in a preceding page. Indeed, our persuasion is, that if any medicine is to cure the disease in this stage, we are mainly to rely on the extensive influence of minute doses of tartarised antimony on the extreme vessels at large, both as the best means of preventing further deposits, and the one most capable of stimulating the capillary arteries to fill up, or coalesce the sides of the excavation.

With the same object it is now requisite more than ever to still

* Oration for Archias, the poet.

the cough. There are certain obvious circumstances rendering the cure of consumption doubly difficult, when it has advanced to the stage of ulceration. One is, that the sore is always in movement—now stretched on inspiration, now collapsed on expiration ; and, if to these are added the continual rude shocks given to it by coughing, we cannot much wonder that it should not heal. Another circumstance unfavourable to the healing of ulcerations in the lungs is, that they are constantly exposed to the air and cold, and we cannot apply appropriate dressings to them. An ulcer, on an external part, if treated so, would be difficult to heal, even in a sound constitution ; how much more so must it then be, when situated in the lax tissue of the lungs, and an unhealthy unhealing diathesis to contend with besides ?

To abate, therefore, the frequency and violence of the cough, we are to have recourse to sedatives. Hemlock, hyoscyamus, extract of garden lettuce, and opium, in some of its forms, are those usually employed.

Hemlock, from its first introduction into practice, has established for itself a well-founded reputation of lessening the pain and irritation attendant on ulceration, wherever situated, and rendering the discharge from it less acrid. Its principal effect in consumption is to diminish the morbid irritability of the lungs ; and its sedative impression may be aided by conjoining it with some other medicine of similar property.(19)

The extract of garden lettuce was much used by the late Dr. A. Duncan, in consumption, in doses of eight or ten grains ; and it certainly acts as a mild and manageable narcotic. But nothing is so powerful, in checking the violence of the cough, as opium. The objections which apply to its use, in the early stages of the disease, are much lessened by the altered circumstances of the case : our object now is, not so much to produce absorption, which opium would prevent, as to abate the violence and frequency of the concussion given to the lungs by coughing ; and its stimulant effect may be mitigated, by combining it with camphor, spiritus Mindereri, &c. ; or it may be used endermically, that is, by sprinkling it on a blistered surface. I have often seen a grain of the acetate of morphia, applied in this way over the pit of the stomach, procure a quiet night's rest, when the same substance, internally taken, had failed. The same result is frequently obtained when this drug is administered in the form of enema. The celebrated Dupuytren preferred, in many cases, this latter mode to all others, in the administration of opium, even when no idiosyncratic objection was present.

Digitalis was formerly, and is still, much used in consumptive cases, and frequently with much benefit. But we are to recollect what is the object we have in view, in order to prescribe it properly.

(19) R Extr. Conii, Extr. Hyoscyami, aa ʒii. ; Pulv. Ipecac. gr. x. Con-
tunde simul optime, et divide in pil. xxiv. Sig. Duæ nocte et una mane
sumendum.

When ulceration has taken place, there is always greater inflammatory excitement present in the lungs, than before the dissolution of the tubercles; the heart and larger arteries pulsate with greater force; and active inflammation is readily set up, both in the substance of the lungs, and in their membraneous envelope, the pleura. Now, when this runs high, and the patient is labouring under great difficulty of breathing, acute pain in the side, &c, the physician is placed in circumstances of great difficulty,—to decide whether the symptoms demand the actual loss of blood; or whether the controlling power of digitalis over the circulation, assisted by derivatives applied to the surface, would suffice; for he is to recollect, before venturing on any such energetic treatment, that “there lies no writ of error in the grave.” Whenever, therefore, an evident tendency to inflammation exists in the case, we are to resort to digitalis to keep it in check, and thus avoid—what necessity alone can oblige us ever to adopt in consumption—the actual abstraction of blood. The subjoined formula we have found useful.(20)

Sponging the body must not be employed in the stage of ulceration, lest it should excite the inflammation we have just spoken of; and a change to a warm climate, under the same circumstance, is worse than useless,—it is positively hurtful; for, generally speaking, consumptive patients die more speedily in hot countries, after ulceration has begun, than in England, where, by art, we can, if necessary, regulate the temperature so as to counteract the cold, without carrying it to an opposite extreme.

Issues between the shoulders have been recommended; but we are inclined to agree with Tomasini and Rochoux, and think that, instead of good, we have seen them, on the contrary, oftener productive of harm; and, therefore, as a counter-irritant, pustulation, raised by tartar emetic ointment, is to be preferred.

With regard to the inhalation of iodine, and such like, in consumption, we have no confidence in the practice; and believe that, when these substances prove beneficial, it is purely in chronic thickenings of the mucous membranes of the air-tubes. Iodine has the power of stimulating the absorbents to increased action; but this, in the ulcerated stage of consumption would only tend to enlarge, not lessen, the cavity of the ulceration.

There are certain symptoms occurring in the latter stage of consumption, which require immediate attention; and none more, from the great debility it induces, than the looseness that is apt to alternate with the night perspirations. Catechu and chalk are, perhaps, the best astringents we can employ; and the irritability of the intestines may be allayed by a small addition of the tincture of opium.(21)

(20) R Tinct. Digit., Vini Sem. Colchici, aa ℥i.; Mucil. Acaciæ, ℥iii.; Syr. Aurant. ℥i.; Aquæ Font. ℥iv. M. Sumat cochl. ampla duo quartâ quâqua horâ.

(21) R Cretæ ppt. ℥ii.; Sacch. purif. ℥ss.; Tinct. Catechu, ℥ii.; Tinct. Opii, m xxx.; Aquæ Cinnam. ℥ii.; Aquæ font. ℥iv. M. Capiat cochl. ampla duo post singulas sedes liquidas.

We must endeavour to check the profuse night perspirations, by sulphuric or nitric acid potions, and by diminishing the quantity of the bed-clothes ; although the latter requires great caution, and ought, rather, to be done before the perspiration breaks out, than during its continuance. Against the thrush, which frequently infects the mouth in the latter periods of the disease, a little borax, rubbed up in confection of hips, may be used.

Few morbid phenomena are less understood than those of hectic fever. Some have thought that hectic arose, in consumption, from the absorption of purulent matter into the circulation : but there is no proof of this, in the first place ; and, in the second, we know that it is a frequent concomitant of other diseases, in which there is no suppuration going on. If we attentively scrutinize the nature and sequence of its characteristic symptoms, I apprehend we shall find them to be nothing but *morbidly exalted conditions of the natural phenomena that take place diurnally in health* : but this is not the proper place to demonstrate the fact.

The last and concluding observations we have to make, are a word or two on the diet of the patient in the latter stages of the disease. This requires to be of a more nourishing quality ; for we have a purpose to sustain by it, which, in the early stages of the disease, was not of the urgent consequence it has now become, namely, the supporting the sinking powers of the system, and the protraction, if not the security, of the patient's life against the exhausting effects of the disease. Jellies, soups, puddings, and such like, may, therefore, be allowed ; and we have, at times, found malt liquor (porter) in moderate quantity, aid powerfully in sustaining the patient's strength.

CHAPTER III.

OF DRY CATARRH.

THE branches into which the wind-pipe divides when it arrives at the lungs, are termed the *bronchi*, and when the membrane which lines them becomes the seat of inflammation, the disease is called *bronchitis*. But, in all the descriptions given of this disease there enters a considerable degree of confusion among medical writers, owing mainly, as it appears to us, to the want of correctness in locating the exact seat of the morbid action. It is to be recollected, that in the structure of the air-tubes there are more tissues than one : in referring, therefore, the inflammations affecting them exclusively to their mucous lining, we are likely oftentimes to be wrong. In this point of view, are we disposed to consider the pathological descriptions of dry catarrh given by most medical writers—a disease, in its pure state, bearing, as we shall immediately

endeavour to show, little or no resemblance to those inflammations of the *mucous* lining of the bronchi described at some length in a preceding part of this work. Dry catarrh, when uncomplicated, is distinguished from all other affections of the lungs by two characteristic circumstances,—the noisy violence of the cough at its very commencement; and the little phlegm, notwithstanding, that is expectorated, not merely in the beginning of the disease, but throughout the whole course of it; for even in its decline and termination the expectoration never becomes copious. The violence of the cough causes the chest actually to ache from the severity of the concussion; more or less of tenderness and soreness, if not acute pain, in the chest always accompanies this affection, along with considerable difficulty of breathing, and what little expectoration is brought up at the termination of a violent fit of coughing is usually viscid and of a pearly appearance.

Dry catarrh is a disease which is often met with of long standing. The cough may almost be said to become habitual in some cases, since we have known it to last for twenty years. This circumstance is a proof of the little tendency the disease has to assail other structures; and it is sometimes surprising to observe how much emaciated the patient will become in consequence of the long continuance and severity of the disease, and how readily violent cough is excited by the slightest variations of temperature, such as going from one room into another, the opening of the door, undressing in going to bed, or quitting it to dress in the morning, and yet that the inflammation should not extend into the substance of the lungs.

As no very great degree of fever accompanies this complaint, in its simple form, and as it affects the strength even less than an ordinary catarrh, it is very usual for people to neglect it in the beginning, and only to apply for medical advice when the disease has so firmly fixed itself, as to be removed by much greater attention than what they can, in many instances, be induced to bestow. The patient is in some business or occupation, perhaps, to which he conceives himself still well enough to attend; and by doing so he gradually gets worse. He not unfrequently dismisses his physician before he is well; and, by and by, returns to him with every symptom aggravated, with the cough more violent and frequent, and the expectoration altered in its character: he is evidently much wasted in flesh; labouring, in fact, under what, perhaps, you took the precaution to predict would be the result of his neglect—*bronchial* consumption.

Now, the whole tenor of the symptoms, from their commencement to their issue, clearly shows that the mucous membrane is very little involved in the morbid phenomena. The disease in reality, lodges deeper, and has its seat, if we mistake not, chiefly in the interstitial cellular tissue of the muscular fasciculi of the air-tubes. It is the irritation, excited by the inflammation, that provokes the frequent cough; and the spasm among the muscular fasciculi, which it also gives rise to, increases the difficulty of breathing and sense of con-

striction produced by the tumefaction of the sides of the air-tubes—symptoms which, from their resemblance to those attendant on spasmodic asthma, have occasionally obtained for this affection the name of “Dry Asthma.”

The alterations of structure which the disease induces are such as we might expect from the tissue affected. The mucous lining of the air-tubes often evinces no morbid change, excepting in appearing whiter than natural; or, when vestiges of inflammation show themselves, they bear the character of chronic action, the increased redness being of a dark hue, the result of the congested state of the venous capillaries. The principal seat of the disorganisation is found in the structure of the air-tubes themselves. From the long continuance of the morbid action, depositions, which thicken the sides of the bronchi, take place among the muscular fasciculi, which frequently so encroach on the calibre of the tube as nearly to obliterate it. Other morbid alterations ensue, as *sequelæ*. The state of constriction of the air-tubes, now rendered permanent by the thickening that has taken place, not only impedes the entrance of air into the air-cells, but hinders its free egress, and alterations of structure of a mechanical nature are the consequences—dilatations of the air-tubes, or enlargement or rupture of the air vesicles. Now, the reason of this is not difficult to comprehend; for is it not obvious, that, if there exist a continued obstruction to the free emptying of the air-tubes and cells by a narrowing of the upper bronchi, and compression be at the same time forcibly applied over them, as happens by coughing, the tubes and cells must either yield to the compressive force, and thus, by enlarging at the hither extremity of the obstruction, produce a dilatation of the bronchi in the one case, or, *vesicular* emphysema in the other; or they must burst, and pouring the air into the cellular substance of the lungs, give rise to what is termed *interlobular* emphysema. The dilatations of the air-tubes are not regular either in substance or place. Sometimes they are thin and vesicular, at other times thickened and indurated: sometimes the enlargement extends the whole length of a bronchus, while, at others, the dilatations are detached and saccular.

There is usually not much difficulty in distinguishing this affection of the fascicular tissue of the bronchi from the other diseases of the chest at the beginning; but when the disease has been neglected, or of long standing and purulent matter comes to be expectorated in abundance; then the diagnosis between it and tubercular consumption becomes somewhat difficult on account of the general resemblance of symptoms. In drawing the distinction, we are guided in our judgment by carefully attending to the previous history of the symptoms, as the noisy violence of the cough from its commencement, the paucity of phlegm ejected throughout the whole course of the disease, and more certainly still by the signs disclosed by the stethoscope in the various stages of the disease.

From the thickening of the air-tubes and consequent diminution

of their calibre, the air is prevented from freely entering the air-cells, and hence the respiratory murmur is heard but feebly ; and when any viscid phlegm blocks them up entirely, it is absent altogether. These sounds are modulated and change their place according as the cough removes the obstructing cause ; and hence, the respiratory murmur becomes audible in a part where a little before it was imperceptible, and obscure in another where a moment ago it was quite distinct.

The narrowing of the bronchial tubes yields another sign, and that is, the peculiarity of the noise made by the air in passing the constricted portion. The sound rendered to the ear is a *dry* sonorous, or *sibilant* (whistling), rattle, accompanied with a clinking noise like that of a little valve. This latter sound has been explained by attributing it to the movements, backwards and forwards, of a small portion of viscid mucus, caused by respiration : if the dilatation of the bronchi, or air-tubes, be considerable, bronchophony is then heard.

The symptoms and signs of pulmonary emphysema are, a constant difficulty of breathing, which is always liable to be much exasperated on every accession of a fresh cold ; the countenance has an anxious expression ; the respiration is high and frequent, and the pulse quickened : there is increased sonority of the chest on percussion, and the respiratory murmur is feeble,—forming collectively a concurrence of symptoms usually denominated, in the ordinary vague application of the term *asthmatic*.

When dry catarrh terminates in suppuration and partial ulcerations, constituting, in fact, bronchial consumption, the strength of the patient holds out much longer than in tubercular consumption ; nocturnal perspirations are not so speedily induced, neither are they, when present, so profuse, colliquative, and debilitating ; and though the suppuration be copious, the ulceration is never very extensive, circumstances rendering recoveries much more common in the one disease than in the other.

Among the causes giving rise to this affection of the air-tubes, none are so common as a *dry*, cold, and piercing wind ; the inhalation, likewise, of various impalpable dusts, or acrid vapours, is a very usual source of the disease, and hence, several kinds of trades and occupations are particularly obnoxious to it ; such as needle-pointers, stone-cutters, millers, carpenters, smelters of metals, operative chemists, &c.

Though, in dry catarrh, the excessive suppuration and consequent debility be the most ordinary causes of the fatal issue ; yet death at times ensues before suppuration takes place, and from a cause operating quite differently. Andral relates a case of sudden death in this disease, proceeding from the obstruction of a large air-tube by a mass of concrete half solid phlegm. When this happens at the origin of a principal bronchus, if not immediately displaced by the cough, it induces symptoms of suffocation : the patient is seized all at once with great difficulty of breathing, his face becomes

swollen, and of a violet colour, his hands livid, and the pulse nearly extinct—symptoms which are only removed by the expulsion of the thick and viscid phlegm obstructing the air-tube.

The foregoing are the principal circumstances connected with *idiopathic* dry catarrh; but before proceeding to treat of the means of cure proper to it, we shall briefly notice the *symptomatic* and *sympathetic* forms of the complaint. A sympathetic disease is one that has its seat, not in the part first of all affected, but as the word expresses, originates from a consentient feeling with some other organ previously diseased. Thus, morbid conditions of the liver and stomach affect the lungs, and give rise to what are called liver coughs and stomach coughs. A diseased liver may affect the lungs in three several ways.—Firstly, its size is at times so much increased by disease, that, suspended as it is to the diaphragm, its great weight alone irritates this muscle, and, by provoking its contraction, occasions frequent cough. Secondly, when the membrane which covers the liver is inflamed at its upper and back part, the disease is apt to spread along the continuity of the membrane, and involve that portion of it lining the under side of the midriff: here, again, we have in inflammation another source of irritation exciting this muscle to spasmodic action, and hence causing cough. In both the preceding instances the cough is *symptomatic*. The third, and last kind of liver cough, is that which is excited through the nerves communicating with this viscus and the lungs, by which the morbid irritation is conveyed from the seat of disease to the seat of sympathy. In whichever of these three ways cough is excited in the first instance, it is evident it cannot continue for any length of time without inducing disease in the lungs themselves from the violent concussions of the coughing, and thus, in the end, to institute that on which we treat—inflammation of the sub-mucous interstitial cellular membrane of the air-tubes: in exactly the same way it produces, first inflammation, and then, ulceration both of the trachea and larynx, in the latter stage of consumption.

With respect to stomach cough, its pathological *rationale* is precisely similar. This form of cough usually affects the dyspeptic, in whom the disorder of the digestive organs is brought on by habitual intemperance, or something approaching to it. It is a cough very commonly met with in London among those who nightly spend their evenings in resorting to some close and heated room, and after exposing themselves to the chill of the evening in returning home, retire to bed with a highly excited and loaded stomach from what they have indulged in; the consequence of which frequently is, that every morning persons of such habits are seized with a violent fit of coughing, which does not cease until they have brought up a quantity of thick and viscid phlegm.

Of the Treatment of Dry Catarrh.

Though the particular tissue affected be different from that in

common catarrh, yet both diseases being essentially inflammations, the treatment laid down as proper at the commencement of the one, is equally applicable to the other when either are slight. But it is otherwise, in the severer forms of the disease we now more particularly treat of; and, while a general bleeding in simple catarrh is seldom necessary, in dry catarrh, when the cough is severe and somewhat painful, leaving a feeling of rawness in the chest after it has ceased, we ought never to omit it, even though the patient be not quite young, or very plethoric. We have often seen one bleeding so completely abate the disease, that very simple means besides afterwards sufficed to removed it altogether.

In slighter cases, and especially when the patient is infirm or delicate, leech-bleeding, or a blister applied over the upper part of the sternum, or between the shoulders, will, in general, supersede the necessity of resorting to venesection.

To diminish the frequency, and abate the violence of the cough, an object of great importance in this disease, it will be necessary to prescribe some demulcent mixture, to which either a little ipecacuan or antimonial wine may be added; and when we have reason to think the inflammatory action sufficiently subdued, we may further promote this object by calling to our aid some one of the anodynes—hyoseyamus, or some preparation of morphia.(22)

Still later in the disease, an anodyne may be advantageously prescribed at bed-time, when we judge the cough to depend more upon irritation than inflammation.(23)

However, it very frequently happens, as I before observed, that medical advice is not sought for at the commencement of the disease, but only after it has been allowed to go on unchecked for a considerable time, or if temporarily subdued through proper measures, fresh exposure to cold, or some other imprudence, has reproduced it in an aggravated degree of intensity. In these cases, after premising such depletory measures as symptoms and circumstances indicate, together with counter-irritation by blisters or tartar emetic ointment, nothing will be found so efficacious in allaying the irritation which excites the cough as the hydrocyanic acid.

Few circumstances more distinctly evince the specific character of different tissues, or the importance of a knowledge of the relation which their morbid conditions have with therapeutics, than the almost total inefficacy of cathartics in the cure of *dry* catarrh, and their powerfully remedial influence in the *mucous*. Indeed, beyond the occasional necessity there may be for their employment to counteract constipation, cathartics are of very little use in the acute

(22) R Mucil. Acaciæ. ℥iiss.; Liqueur. Ammon. Acet. ℥iss.; Vini Ipec. ℥iss.; Syr. Simp. ℥i.; Aquæ Font. ℥ii. M. Sumat cochl. ampla duo tusse urgente.

Cui hactenus addendum sint; Tr. Hyosey. ℥iss. vel, Liq. Sedat. Batleii, ℥xl.

(23) R Tinct. Hyosey. ℥xxxv. vel, Tr. Opii, ℥xxv.; Syr. Simp. ℥iii.; Aquæ Font. ℥ix. M. Ft. haustus.

stage of the disease, and are positively injurious in the chronic. The same observation, however, does not apply to diaphoretics, for by equalising the circulation, they tend to abate all local inflammation, and, therefore, they may be continued in dry catarrh as long as this exists either in an acute or sub-acute form.

We have now to consider dry catarrh in its chronic stage, when, through neglect or otherwise, we have to encounter greater difficulty in the treatment. The depletory and other antiphlogistic measures so necessary in the first periods of the disease are no longer proper, for, though inflammation be still existent, it has changed its character; there is now much more of irritation mixed up in the symptoms than arterial activity, which strong depletory and antiphlogistic treatment, if resorted to, would only aggravate.

The essential character of acute inflammation consists, in our opinion, in an inequality, or want of simultaneous action and proportionate power, between the larger arterial trunks and their corresponding capillaries; and that, while this action and power are augmented in the first class of vessels, they suffer a simultaneous diminution in their ultimate ramifications. Now, when inflammation becomes chronic, though the larger arterial trunks may have lost all their primary activity, and have even fallen below what is natural to them in health, an opposite and countervailing change has not ensued in the capillaries; they have not regained their healthy tone, but, on the contrary, the state of inflammatory congestion has become greater.

Such being the altered pathological nature of the disease in its chronic state, we may thus readily perceive how any strong antiphlogistic measures, by increasing the general debility, will aggravate rather than relieve the symptoms of every chronic inflammation. We are therefore obviously called upon to adopt means to correspond with the altered nature of the disease, and since this principally consists in a state of capillary debility, and hence of capillary congestion, the evident indications of cure are to remove this debility by tonic stimulation, to relieve the congestion through derivation, and to still the cough, which tends so powerfully to keep up and increase both, by sedatives.

With the first intention, we are to resort to the use of those stimulants which find their way directly to the capillaries in their passage out of the body by the exhalants. It is in this way that sulphur often acts so beneficially in chronic coughs: myrrh, galbanum, assafoetida, and ammoniacum, operate as remedies after the same manner, and with one or other of these we are in the habit of combining camphor: for though it has not been shown that this substance, like the others, is excreted by the exhalants, it has been detected in the blood, and one of its main points of action we know to be that of a stimulant in the capillary system.

But, besides operating on the local debility, it will be proper to gently stimulate the general system. Minute doses of calomel and opium are often of the greatest service, for no medicine more pro-

motes the removal of any thickening that may have taken place in the cellular tissue of the air-tubes, by stimulating to increased activity the absorbent veins of the part, than calomel. When the cough has nearly ceased, we may venture on a little quinine, carefully watching its effects.

The best derivatives are mustard poultices, repeatedly applied to different parts of the chest, and tartar emetic ointment used so as to bring out a crop of pustules ; while the circulation on the surface of the chest may be further promoted by a Burgundy pitch plaster between the shoulders, or on the breast : the latter remedy has another good effect besides—it protects the air-tubes from any sudden impression of cold from without.

Change of air is often of great service in obstinate cases, and the means, which had no beneficial effect at home, are frequently quite successful in another air. Indeed, change of air, alone, is sometimes sufficient to remove the complaint.

When suppuration and ulceration have taken place, and bronchial consumption is established, although this event adds much to the uncertainty of the issue, it does not materially alter our practice.

It is superfluous to say that it behoves the patient to be cautious how he exposes himself to the vicissitudes of the weather. He should protect himself against them, even though confined to the house, by warm clothing. His diet, especially, requires regulation: this should be nourishing, but easy of digestion ; and he is to avoid wine and all spirituous and fermented liquors, which only increase the state of capillary debility by their primary effect of over-stimulation.

We have still a word or two to say before concluding, in reference to the treatment of symptomatic and sympathetic dry catarrh.

It is intuitively obvious that, when this disease has its origin and dependence on either the liver or stomach, no treatment, directed solely to the secondary affection (the disease set up in the air-tubes,) can prove any thing else than palliative and temporary, unless we remove its primary cause, the disease going on in one or other of those first-mentioned organs. Now, it does not belong to our present subject to treat of either ; but, as one cause of stomach cough is so readily and directly remedied, if not permitted to take too fast hold of the lungs, we mean, the nightly habit of frequenting heated rooms, and there stimulating and gorging the stomach with strong excitants, we may cursorily be allowed to recommend the abandonment of habits so hurtful to health, and which so often lead to the firm installation of a morbid state of the lungs that very commonly ends in bronchial consumption.

It is on this principle, that a short sojourn at some of the watering-places does some of our London citizens so much good : for, independent of the change of air, and other conducing circumstances, it separates them for a time from their unhealthy habits of enjoyment and recreation.

CHAPTER IV.

OF THE COUGH ATTENDANT AND CONSEQUENT ON MEASLES.

THIS kind of cough requires only a brief notice ; not because it is not important, but on account of its analogous nature to others which have already been fully discussed.

The cough *accompanying* measles, arises from the inflamed state of the mucous membrane of the air-passages. In slight cases, the fauces and upper part of the wind-pipe alone are affected ; but frequently the inflammatory action does not stop here : having reached the trachea, it descends, and, involving the air-tubes in its course, invades the entire mucous lining of the air-cells. Symptoms characteristic of the function of the parts affected immediately ensue ; along with considerable hoarseness, the patient is vexed with a violent frequent cough, the breathing becomes difficult, and when the disease runs high, the inflammation assails the substance of the lungs, and we then have all the symptoms of pneumonia. At the height of the fever attendant on measles, the inflammatory action is most violent and acute, and often lays the foundation for secondary diseases of the most dangerous nature. After the specific symptoms have disappeared, this disease is prone to leave a highly irritable and inflammatory diathesis behind, possessing the strongest tendency to call into activity any other morbid disposition that may lie dormant in the constitution ; and hence, consumption, among the rest, very often supervenes as a sequela of measles.

When treating of phthisis, we mentioned the manner in which it was probable inflammatory action operated, under certain constitutional circumstances, in the primary formation and development of tubercles. This it is not necessary to repeat ; and the same may be said with respect to the proper treatment to be adopted in the different kinds of cough proceeding from measles : it will be found laid down under the several heads of catarrh, pneumonia, and consumption.

CHAPTER V.

OF GOUT IN THE LUNGS, OR GOUTY COUGH.

THERE are two forms under which gout not unfrequently appears in the lungs ; the one of an acute character, the other of a chronic. The first begins with the ordinary symptoms of bronchitis, a violent, dry, and noisy cough, and slight febrile symptoms. After a time,

the gout takes up its ordinary position by attacking the foot, the seizure, for the most part, coming on in the night. From the moment the disease makes its appearance in the regular form, the cough sensibly abates, and soon ceases altogether. Patients whose fits of gout are apt to return about the latter autumnal and during the winter months, are most liable to be thus affected; and with some it is usually the harbinger of their periodical attack, that, adopting the wise maxim, "*Venienti occurrere morbo*," they treat the disease in the lungs the same as if it were in its regular place—the foot.

A circumstance characteristic of this kind of cough is, that, while the patient remains in a warm room, the cough is little troublesome, and often will cease altogether for hours; but the slightest change of temperature, such as going into the passage, or up-stairs to a bedroom, is certain to bring on a violent fit of coughing. This excessive sensitiveness of the lungs to atmospherical variations is not peculiar, it is true, to gouty cough; but it possesses this particularity about it, that the degree of sensitiveness, and that of the inflammatory action, are not co-ordinately proportionate.

The other kind of gouty cough I spoke of, or the chronic, is confined in its attacks to those old and infirm subjects whose constitutions have been broken up by long-repeated aggressions of the disease. This form of gout does not fly to the extremities, but remains fixed in the lungs, while the paroxysm lasts. It is of a much more dangerous character than the first-mentioned species; and, assuming, as it is eventually apt to do, the pituitous character, it kills the patient in the ordinary manner of this disease—that is, by the destructive reaction of its own consequences—by the gradually increasing debility augmenting the quantity of phlegm, while the copious secretion of the latter reciprocally augments the debility: the air-cells becoming filled with mucus, which, from weakness, the lungs cannot expectorate, excludes the air inspired from coming in contact with the blood; till, at length, the phlegm accumulates in such quantity as to produce slow suffocation, and the vital powers become extinguished in consequence of a re-acting series of destructive causes and effects.

With respect to the treatment of the first form of the disease, nothing so effectually relieves the pulmonary affection as colchicum. A demulcent mixture (24), containing colchicum and ipecacuan wines, may be taken during the day; and a full dose of colchicum, combined with some carbonate and sulphate of magnesia, at bedtime. This practice I have repeatedly seen, not merely relieve the lungs from the gout, but sometimes remove the paroxysm entirely.

Now, though the plan of treatment to be adopted, in chronic gouty cough, be somewhat similar, it is infinitely seldom so successful. We are to avail ourselves of the aid of Colchicum in this form of

(24) R Vini Sem. Colch., Vini Ipecac, aa ʒi.; Mucil. Acac. ʒiiss.; Mist. Amygd. ʒv. M. Capiat æger cochl. amp. duo quater in die.

the disease, also ; but, as the expectoration rather requires to be checked than promoted, we must dismiss the ipecacuan, and substitute one of the preparations of morphia, or hyoseyamus, in its stead. The disease is to be solicited to the extremities by warm foot-baths, mustard poultices, and the like ; and it is to be gently expelled from the chest by the employment of external derivatives. The regimen, which, in the first kind of gouty cough, requires to be somewhat severe, is in this, on the contrary, to be rather generous and sustaining. The body is too warmly clad at all seasons of the year ; and all the emunctories of the system kept in due activity, by regulating them by appropriate means, as they happen to require it.



CHAPTER VI.

OF ASTHMA.

No disease, for a long time, was less understood, by medical men, than asthma. Every difficulty of breathing, if fixed and continuous, was designated *asthmatic* ; and the same indefinite application of the term still remains in vulgar use. This general application of the word caused it to be employed to denote a variety of morbid states of the lungs, very different from one another ; and, hence, Dry Catarrh was often called "Dry Asthma," in contradistinction to the chronic form of pituitous catarrh, which was designated "Humid Asthma."

Before that useful instrument, the stethoscope, was invented, the great difficulty of breathing, attendant both on dropsy of the lungs and enlargement of the heart, was considered asthmatic ; and, as the difficulty of respiring has fits of aggravation, so violent at times as to oblige the patient to sit upright in bed to enable him to breathe, this circumstance perfectly well accorded with the purely spasmodic character affixed to the generic complaint. It is by the constant subcrepitant rattle, the indistinct respiratory murmur, and other signs obtained by the stethoscope alone, by which we can with any certainty assure ourselves of the exact nature of the first of these diseases, and pronounce it dropsy (*œdema*) of the lungs ; while by the forcible, dull, and prolonged impulse of the heart's contractions, ascertained by the same instrument, we arrive at the knowledge of the state of enlargement (*hypertrophy*) of the heart.

But, since dissection has shown that there exists a pure spasmodic affection of the lungs, in which there is no appreciable lesion of the organ, however much there may of its function, it appears to us, that, if we are to retain the term at all, it ought, in strict medical nomenclature, to be confined to indicate one specific disease ; and

with such an application of it, we now use the word "Asthma" to denote alone the pure spasmodic affection spoken of, referring the reader to what has been said of "Dry and Pilituous *Catarrh*," for the description and treatment of those diseases which, in ordinary language, are denominated Dry and Humid *Asthma*.

Pure spasmodic asthma is comparatively a rare disease ; so much so ; that some have been inclined to question whether there be any such disease at all : but, independent of the testimony of *post-obit* examinations, we are confirmed in the persuasion of its real existence by the fact, that causes which act solely on the nervous system are capable of producing a paroxysm of spasmodic asthma, which are totally inefficient in other affections of the breathing. For example, certain odours and mental emotions will induce it ;* and we have, moreover, an analogous corroboration of its existence in chincough, which, in its pure form, and before it becomes complicated with its own morbid consequences, is another purely spasmodic affection of the respiratory organs.

The pure form of the disease is confined in its attacks to those of a nervous temperament, and differs from its pseudotypes, in the fit concluding without any expectoration, and in there remaining no difficulty of breathing after it is over. If the stethoscope be applied to the chest, little or no respiratory murmur is heard during the continuance of the paroxysm, and when it has ceased, the sound of natural healthy breathing alone remains. But, in the dry and humid catarrhs that have become chronic and habitual, there is always more or less difficulty of breathing present ; and when, by the supervention of a fresh cold, the dyspnœa is much and suddenly aggravated, this accidental paroxysm usually terminates in the expectoration of more or less of phlegm ; on the acute aggravation ceasing, the habitual chronic disease does not cease likewise, and hence the habitual difficulty of breathing still continues.

The cause of this particular affection has not been correctly ascertained. For my own part, I am inclined to suspect its seat to be in the dorsal portion of the spinal marrow, from what I have observed in one or two cases of the efficacy of remedies when applied to the back.† But the treatment which affords the speediest relief is an emetic ; and, in this respect, we trace the analogy of its nature to chincough, as far as regards their both being pure spasmodic diseases.

We know that emetics act principally on the muscular fibre by an impression conveyed by sympathy from the stomach to the abdominal muscles. Now, it appears to me, that vomiting operates

* There is great reason for suspecting this affection to be at times merely a mode of hysteria. This species of cough (the hysterical) is by no means uncommon, and requires very different treatment from almost every other. All depletory measures are hurtful: not less so are sedatives ; opium in particular is injurious, and demulcents are of no use.

† For some further illustrations of these views, see the chapter on "Hooping Cough."

as a remedy in spasmodic asthma, by producing clonic spasm among the respiratory abdominal muscles, by which the tonic spasm affecting the muscular *fasciculi* of the air-tubes is solved both suddenly and violently. There are many facts in therapeutics analogous to the above, which show that, by simply interrupting a morbid action for a time, you often succeed in checking its regular accession, or in preventing its recurrence altogether. We find it so in agues; we have witnessed it such in asthma and chincough.

It is in this form of asthma that we have seen stramonium most successful. But, while we are using temporary means to solve the paroxysm, we must endeavour more effectually to prevent its recurrence, by strengthening the tone of the nervous system in general. Valerian and bark prove a beneficial combination for this purpose;(25) and both quinine and the metallic tonics may be prescribed either in the form of pill or mixture, along with some of the bitter extracts or infusions.

Advantage is to be taken of pure air and healthy exercise, and of whatever tends to improve the general strength.

When the disease can be traced sympathetically to any disorder of digestion, and particularly if to the prevalence of acidity in the stomach, we must counteract this, palliatively, by magnesia or an alkali, and more effectually still, by strengthening the digestive organs themselves.

CHAPTER VII.

OF PLEURITIS, OR PLEURITIC COUGH.

PLEURISY is an inflammation of the membrane called *pleura*, which envelopes the lungs and lines the ribs. The disease hence is divided by medical writers into pulmonary pleurisy and costal pleurisy, according to the part of the membrane which is affected.

Pleurisy is characterised by acute pain in the side, most commonly on the right, great difficulty of breathing, dry, short, interrupted cough, considerable fever, and a strong, hard, and frequent pulse. The cough in pleurisy is not occasioned by any irritation within the lungs, as happens in most of the diseases we have hitherto treated on, but arises from the *extension* made on the diseased membrane by the action of respiration. In pulmonary pleuritis, the pleura is necessarily stretched on the lungs becoming filled with air, and the same thing as necessarily happens in costal pleuritis on every full inspiration by the elevation of the ribs. Hence it is, that

(25) R Pulv. Cinchonæ, ʒi.; Pulv. Valerianæ, ʒss. M. bene, deinde divide in chartulas xxiv. Sumat i. ter in die.

inspiration in this disease not only excites cough, but pain, and both circumstances obliging the patient to distend his chest as little as possible, the breathing thus becomes small, short, frequent, interrupted, and irregular; inspiration being quick and short on account of the pain it occasions, and expiration slow, in order to avoid the pain a quicker movement would give rise to. By one of those beneficent laws, so often observable in the physiology of the human economy, the natural movements of the chest in this disease are always much enfeebled on the side affected: and another circumstance connected with pleurisy, not less curious as a pathological phenomenon than important as a distinguishing symptom of the disease, is, that the ribs corresponding to the place affected are *entirely motionless*, while the others continue to rise and fall, though in a diminished degree.

We have already had occasion, more than once, to advert to our obligations to the stethoscope for making us acquainted with diseased phenomena going on in the interior of the body, of which, before its discovery, we are entirely ignorant; and one, among others, of the many advantages which has accrued from its introduction into practice, as a means of diagnosis, is the ascertainment of the fact, that more or less of effusion into the cavity of the thorax always accompanies pleurisy.

If the quantity of serosity poured into the chest, either originally, or by progressive accumulation, be great, the peculiar sound heard through the stethoscope, and which, from its fancied resemblance to the voice of a goat, Laennec has termed *ægophony*, becomes inaudible. Still, we find that when, by reabsorption, this is reduced to the proportion proper for the production of the phenomenon, the auscultatory sign of effusion reappears, and gradually diminishes in distinctness, until it ceases altogether, when the effused serosity is completely removed.

Throughout the whole disease the respiratory murmur is pure, but weak. Percussion, as might naturally be imagined, is painful in pleurisy, but renders the natural sound for an obvious reason—the air-tubes and air-cells are not affected by the disease.

Water in the Chest.

No disease, with the exception of water in the chest, at its commencement, can be confounded with pleurisy, so long as *ægophony* exists. This stethoscopic sign is always a distinguishing characteristic of one of these two affections, but by attention to the other indications and symptoms present in each case, we run no danger of mistaking the one disease for the other.

Water in the chest is essentially a secondary or sequelose disease, and does not resemble the effusion of serosity in pleurisy in its pathological nature, the latter being the effect of the active inflammation going on in the pleura, and, therefore, is to be regarded simply as a symptom; while the former is the result of some

other preceding disease not primarily seated in this membrane. For example, disorganisations of the heart, and of the large arterial trunks in its vicinity, frequently induce water in the chest; so does a disorganised state of the substance of the lungs themselves in consequence of reiterated attacks of inflammation, particularly in broken-down constitutions. This disease, furthermore, has sometimes a marked tendency to prevail in certain families, and is apt to ensue on any severe disease with which they may be attacked, and more especially if that has affected the lungs.

Water in the chest is indicated by the following external signs,—as the water fills in, the shape of the ribs disappears externally, and, dilating the spaces between them, the affected side becomes smooth and rounded. The side containing the effusion loses all movement when the fluid exists in considerable quantity; and the reason of this is obvious; for, by its pressure, it so condenses the lung that it cannot be inflated by inspiration; the ribs, also, from being pressed upon from within are kept constantly raised; and hence, the side diseased not only measures more, but evidently appears larger, than the opposite.

But while dropsical effusions are the common consequences of the chronic disorganisations we have mentioned, those resulting from pleurisy are the formation of false membranes or bands. The tendency of the latter disease is, as has been said, to throw out serosity into the cavity of the chest. Now, thoracic serum abounds with fibrin which separates from the watery portion of this fluid; and, while the latter is usually removed by absorption, the coagulated fibrin that remains forms adhesions between the ribs and the lung, which, on getting organised by the vessels of the inflamed pleura shooting into it, thus establishes a firm and permanent junction between the one and the other. When this takes place by bands, the lung, though restrained in its action, can still act apart from the ribs; but when the union between the two is so intimate as to cause them to adhere together in close contact, it is evident that the lung cannot expand, but by the direct operation of the ribs. When the factitious membranes so constrain the lung that it cannot expand at all, the power of respiring on the side affected is entirely destroyed, and, consequent on this, the ribs collapse in order to approach the contracted lung,—a circumstance which affords an external indication of the particular nature of the disorganisation that has taken place.

It is surprising how quickly, at times, the effused lymph becomes organised. It has been ascertained by experiments to become so within twenty-four hours, when the redness of the new vital substance gradually disappears, assuming, when the process of organisation is complete, the appearance, in all respects, of either a serous or cellular tissue.*

It is a circumstance meriting notice, how prone this new production is to become the *nidus* of tubercular depositions. Andral has

* HORR'S *Morbid Anatomy*, p. 22.

known this to take place within a fortnight after the first symptoms of a pleurisy.

The pleura itself admits of interstitial deposition with the greatest difficulty. Hence, thickenings of this membrane are rare : but it is exceedingly liable to the adscititious thickenings from depositions on its unattached surface becoming organised ; and the sub-serous cellular tissue connecting the pleura to the ribs and intercostal muscles is, likewise, subject to the same change from the same cause.*

Dr. Hope mentions " some very curious facts which have been ascertained respecting new formations by the recent researches of Dr. Dollinger.

" This physician has fully demonstrated that currents of liquids may establish themselves in animal matter in the progression of formation *without the presence of canals to give them passage* : they wind their way through the solids. The agency which gives birth to these currents is unknown ; but Andral thinks, and with much apparent reason, that it is connected with electricity."—*Précis*, i. 379, note.

We now come to the treatment of pleuritis : but as this is so identical with that proper to the disease (*pneumonia*) which is next to occupy our attention, we shall defer speaking of it at present, in order to treat of both together.

CHAPTER VIII.

OF PULMONITIS, OR PULMONIC COUGH.

WE have treated on the different diseased affections of the lining membrane of the lungs, and of their exterior envelope, the pleura : one portion of their structure still remains to be considered, and that is, their parenchyma, or the part of which their substance is constituted.

The entire frame-work of the human system is composed, as every anatomist knows, of cellular membrane, and the form of its parts is wholly derived from the variety of the manner in which this is constructed. Now, it is in the frame-work of the lungs that the disease we indifferently call pulmonitis, pneumonitis, or pneumonia, is seated, and as cellular membrane is peculiarly the seat of phlegmon, it follows, that pneumonia must be purely a phlegmonous inflammation; a fact which we shall fully demonstrate, in the sequel, by the history of its pathology.

The symptoms characterizing this disease are the following :—deep-seated pain in some part of the lungs, which is obtuse, not

* HOPE'S *Morbid Anatomy*, p. 22.

acute as in pleurisy ; great difficulty of breathing, particularly when lying on the affected side, cough, and fever, attended, for the most part, with a full, strong, and frequent pulse.

The robust and plethoric are the most liable to pulmonitis, and it prevails chiefly in winter and the beginning of spring. As an idiopathic disease, a common cause of pulmonic inflammation is sudden exposure to cold when the lungs are heated. But the very reverse of this, that is, sudden exposure to heat when the lungs have been chilled, is a still more frequent excitant of pulmonitis. On entering a warm apartment, upon quitting the open, cold air, the capillaries relax, and the blood, rushing with violence and in increased quantity, into them, thus not unfrequently excites inflammation by what is termed, reaction. External injury, as falls or blows fracturing the ribs, is another common cause of this inflammation ; it is apt to supervene also on several diseases, as consumption in its ulcerated stage, measles, &c., and it accompanies certain forms of typhus. Pneumonia is said to have its seat in the *substance* of the lungs ; but, to speak more anatomically precise, it is the interstitial cellular tissue, investing and connecting the lobules, air-vesicles, and vascular structure of the lungs which is the exact site of the principal inflammation ; but that it partially affects also the mucous membrane of the air-passages, is manifest from the glutinous tenacious phlegm which is expectorated, especially at the commencement of pneumonia ; indeed, this symptom, together with the crepitant noise it gives rise to, as heard with the stethoscope, is that which is most peculiar to, and distinctive of, the disease. Now, it is one of the characteristic terminations of inflamed cellular membrane to suppurate, and, accordingly, we find purulent infiltration of the lungs not an unfrequent consequence of pneumonia. When this takes place, it is indicated by severe shiverings, by the pain abating, the patient now being able to lie on the side affected ; but the breathing becomes more oppressed, and the matter, on finding its way into the air-tubes, is observable in the sputa.

Why the pain in pulmonitis is obtuse appears to be owing to the ready extensibility of the lax structure of the lungs ; but while this circumstance lessens the acuteness of the pain, it is the principal cause of the extreme difficulty of breathing, since the great degree of vascular engorgement it permits of, very much diminishes the calibre and capacity of the minute air-tubes and air-cells by the compression it produces, and thus occasions the dyspnœa.

Another pathological change which very often occurs in this disease, is *hepatisation* of the lung, or the conversion of its spongy substance into a solid matter resembling *liver*. This morbid alteration of structure has been determined to arise from the gradually increasing deposition of fibrin in the circular walls of the air-cells, by which the latter become totally obliterated, and assume a solid granular form. It is through inflammation attacking a hepatized portion of lung, and running into suppuration, that abscesses, or *vomicæ*, as they are called, are formed.

Lastly, the lungs sometimes mortify in cases of severe inflammation ; a result which most frequently happens in constitutions broken down by habitual and long continued intemperance.

Now if we take a review of the pathological results of pulmonic inflammation, we shall find them all to bear out its purely phlegmonous character. We have great vascular engorgement of the cellular tissue of the lungs,—suppuration, either in the form of purulent infiltration or abscess,—hepatisation, if the effused fibrin becomes organised ; or gangrene, when, through the violence of the action, the vitality of the part is destroyed.

We have already noticed the most certain among the diagnostic signs of pulmonitis at its commencement ; the *crepitant* noise in breathing, which is heard by means of the stethoscope, resembling that made by salt when thrown into the fire. It is this sign, combined with the history of the symptoms, that mainly enables us to ascertain the presence of this, otherwise at times, obscure disease. As the inflammation abates, and the phlegm becomes more abundant and less viscid, the noise in breathing changes to that called the mucous or bubbling rattle. With respect to the sound rendered by percussing the chest, this is necessarily dull on account of the diminished size of the air-cells.

When hepatisation takes place, the respiratory murmur ceases with the obliteration of the air-cells ; or, if respiration be heard, it is only in the large bronchial tubes, when the rhonchus is rendered audible through the consolidation of the substance of the lung surrounding them. Percussion, likewise, is dull for the same reason, as the chest is resonant only in proportion to the open, free, and spongy texture of the lungs.

When suppuration takes place, the resonance of the chest is also dull ; and a rattle, like the bursting of large bubbles, is heard, at first in detached points, and afterwards throughout the whole diseased part.

We shall now proceed to point out the method of cure, in which we will treat conjointly, for the reasons already stated, of that proper to pleurisy and pneumonia.

From the close proximity and direct communication of the lungs with the heart, and the short course, consequently, which the arteries proceeding from the latter have to run ere they expand in ramifications throughout the substance of the former, it is evident that, in an inflammation of the substance of the lungs wherein the heart pulsates with inordinate force and frequency, the increased quantity of blood which is thus sent into the organ, and that with an augmented impetus, must strongly tend to aggravate the inflammation. Hence, we at once perceive both the necessity for controlling the heart's action in this disease, and the *modus agendi* by which it proves remedial.

Our most direct manner of doing this, is by a large and full bleeding taken from a large orifice ; and this is to be repeated according to the continued urgency of the symptoms, and the effect which the previous venesection has had in subduing them.

Though the vascular communication between the seat of the disease and the centre of the circulation be not quite so direct and immediate in pleurisy as in pneumonia, the *rationale* and effect of the practice is not less proper or beneficial.*

When, by one or more bleedings, we have to a considerable extent abated the force of the circulation, we are next to rely on the properties of the tartarised antimony to subdue what remains. This it accomplishes in more ways than one, for, independent of its powers of controlling the action of the heart and arteries by the nausea it excites in minute doses, it, at the same time, relaxes the exhalents opening on the surface of the skin and into the air-cells, thus promoting, either by dilution or otherwise, the expectoration of the phlegm.

Laennec's method of administering the tartarised antimony in pneumonia, after venesection, was to give a grain of it every two hours in some sweetened liquid till the sixth time, when the use of the medicine was intermitted for the next six hours, unless the symptoms were urgent, in which case he continued its use until they abated. Patients generally vomit two or three times the first day, and it also affects the bowels, both of which cease on the second.

Peschier, of Geneva, gives it in equally full doses in the same disease. He dissolves six, twelve, and sometimes fifteen grains of tartarised antimony in six ounces of camphor mixture, and administers a tablespoonful every half hour; while Polidori's (of Florence) plan is to give a grain and a half or two grains every evening until the disease is subdued. In England, we regard doses such as the foregoing as unnecessarily large, and prefer obtaining a slight nauseating effect, to full vomiting, in this disease.

In inflammations attended with strong febrile symptoms, there is always present a considerable degree of irritation; until, therefore, both the one and the other are somewhat diminished, blisters do not prove efficacious; but the instant we have, by previous measures, succeeded in allaying the irritable state attendant upon the first stage

* It was an ancient prejudice to practise bleeding in pleurisy always on the side of the body opposite to that affected, vestiges of which are still to be found at this day in the opinions of the vulgar regarding bleeding. There arose a curious controversy on this head about the beginning of the sixteenth century.

Previous to this period, it had been the universal and orthodox practice always to bleed on the side opposite; and when Brissot, a French physician, ventured to recommend bleeding on the same side as the disease, Denys, the king's physician, not only branded the doctrine of his opponent with falsehood, but denounced it as *impious and heretical*, and as pernicious to the body as Luther's schism was to the soul: Brissot, in short, was accused of being "a downright Lutheran" in practice. The dispute ran so high, that it was at first referred to the University of Salamanca for decision, and afterwards to the Emperor, Charles V.; but Charles III., duke of Savoy, happening to die in the interim, after being bled on Denys's side, this event went farther to settle the question than any *Senatus consultum* of Salamanca!

After this, can we say that Le Sage's picture of the opinions and practice of the great Dr. Sangrado is overdrawn?—Borelli, in fact, might very truly have sat for the original!

of inflammatory fever, we may then have recourse to the derivative operation of blisters with great advantage. In *costal* pleurisy they are of the most marked service, for a reason that is obvious—they can be applied *immediately* over the seat of the disease.

There is a medicine frequently evincing great power in checking the violent action of the heart and arterics, as well as producing other effects not less beneficial in the two diseases we treat of, and that is, *digitalis*. A peculiarity possessed by this drug is, that, while it diminishes the power of the heart, it appears to increase the activity of the capillary veins: it is, also, a powerful diuretic. Now, however beneficial all these effects may be in pneumonitis, they are still more so in pleurisy, since they not only tend to prevent the further effusion of serosity into the cavity of the chest, but also to promote its reabsorption, and its evacuation afterwards, by the kidneys.

Digitalis may be given either in the form of powder, tincture, or infusion (26, 27, 28): the last is most diuretic, but the tincture is the most manageable when we wish it to affect the pulse. The latter effect is also found most readily to ensue in the recumbent position. When it produces giddiness, nausea, or vomiting, the medicine must be discontinued, and these effects counteracted, if intense, by gentle cordials.

In the beginning both of pleurisy and pneumonia, nothing abates the cough so effectually as bleeding and the other anti-inflammatory measures above prescribed, for its primary source is the overgorged state of the pulmonary circulation; but when this is in a considerable degree lessened, we can have recourse to anodynes with safety, in order to check the violent concussion which coughing gives to the diseased organ. Opiates are our best remedies for this purpose, and they may be combined with demulcents (29, 30).

With regard to the treatment of pleurisy and pneumonia, when they supervene either as symptoms or accidents, on measles, consumption, or typhus fever, though the principle be identical with that just laid down, it nevertheless requires great modification in its application, especially to the two last-mentioned diseases; in measles it rather demands moderation, than any considerable modification.

Inflammation of the substance of the lungs in consumption is, for the most part, a sequelose disease, proceeding from the ulceration going on in the lungs, or it may proceed from the irritation of tubercles. Pleurisy, on the contrary, is rather to be considered an accident than a sequela, occurring from some casual exposure to cold.

(26) R Pulv. Digit. gr. ss. en-j.; Camphoræ, gr. ij.; Cons. Ros. q. s. ft. Bolus 4tâ quâque horâ sumendus.

(27) R Tinct. Digit. ℥ xv.; Syr. Aurant, ℥ij.; Mist. Camph. ℥x. M. ft. Haustus 4tâ quâque horâ sumendus.

(28) R Infusi Digit. ℥ss.; Tinct. Cardam. ℥ss.; Aquæ Font. ℥j. M. Ter quaterve in die capiendum.

(29) R Mist. Amygd. ℥ivss.; Tinct. Opii; Vini Antim. aa ℥xl.; Cons. Rosæ Caninæ. ℥ss.; Syrupi Lemonis, ℥j. M. Sumat Cochl. ampl. ij. tusse urgenti.

(30) R Muriat. Morphinæ, gr. ss. Syr. Tolut. ℥ii.; Mist. Camph. ℥x. M. et solve. Fiat haustus, h. s. s.

When pneumonia supervenes on consumption, it usually occupies the superior lobe of the lung ; whereas, in idiopathic pneumonia, the inflammation more frequently attacks the inferior lobe.

The necessity for blood-letting occurring in consumption, is always to be regarded as an unfortunate circumstance, requiring us to be exceedingly cautious how we have recourse to it at all, and when it becomes absolutely necessary, we cannot be too careful of the extent to which we carry it ; after this, we need not say that the quantity of blood to be abstracted in pneumonia supervening in consumption, ought to be reduced to the least possible extent the urgency of the symptoms will admit of.

Digitalis is of great service in subduing sequelose pneumonia : so are blisters ; and, unless the inflammatory symptoms be very violent, we often, through their aid alone, may avoid the necessity of resorting to bleeding at all.

Hydrocyanic acid is of no use either in pleurisy or pneumonia, and purgatives are actually detrimental : the former has no effect on the pulse ; and the latter throw the blood from the surface to the interior by the chilliness they create. However, this effect does not prevent a proper attention to obviate a positive state of constipation.

CHAPTER IX.

OF HOOPING COUGH.

HOOPING COUGH, or Kinkcough, as it is sometimes called, is so named from the peculiar noise made in the inspiration preceding the coughing. It is purely a spasmodic affection at its commencement, but, like many other diseases, it is capable of superinducing others in its course, by its violence and continuance.

The exact nerves that are affected in this disease have not yet been satisfactorily ascertained ; but certain of the symptoms would seem to indicate that those connected with the glottis are more particularly included in the morbid derangement.

The hooping cough is not usually heard at the commencement of the disease. On the contrary, it begins with a common cough, some oppression of breathing, and slight febrile symptoms ; but, as the disease proceeds, the cough assumes a convulsive character ; it comes on in violent paroxysms, and a hoop is now heard on inspiration. When the cough continues long and violent, the face becomes swollen and livid, from the impediment offered to the free return of the blood from the head, which in plethoric children sometimes occasions a bleeding from the nose, the eyes seem as if starting from their sockets ; at length, some viscid, frothy phlegm is expectorated, or the continued concussion sustained by the stomach from the violence and

length of the coughing produces nausea, which, terminating in vomiting, puts an end to the paroxysm by solving the spasm.

Were proof wanting of the pure spasmodic nature of this disease, none could well be adduced more conclusive of the fact, than the circumstance that children (its most frequent subjects) return to their amusements immediately after the paroxysm has ceased, as if nothing had happened. There are other circumstances, besides, that could be adduced, if necessary, which establish the purely nervous character of hooping cough. It is proved, for example, by the nature of many of the accidental causes capable of producing a paroxysm, such as emotions of the mind, a full meal, indigestible food, &c. all of which evidently operate sympathetically. There are some, on the other hand, that induce the spasm in a more direct manner; as violent exercise, for instance, which, by causing an accumulation of blood in the lungs, brings on the fit; the inhalation of any irritant, such as smoke, acrid vapours, and the like, will also produce a paroxysm. During the cough, no respiratory murmur can be heard.

Hooping cough, as I have observed, is chiefly a disease of childhood; but it occasionally happens that those adults who have escaped it as children, are affected with it; for, until the constitution has undergone the ordeal of this disease, it always remains obnoxious to its attack, at least up to a certain period of life.

Hooping cough seldom proves fatal, and when it does so, it happens almost always in very young children. We judge, in these cases, of the degree of danger, by the intensity of the fever and the difficulty of breathing—symptoms giving reason to apprehend that inflammation of the lungs has supervened. But it not unfrequently happens for hooping cough to prove the indirect means of giving rise to certain other diseases much more dangerous in their nature than itself; and hence the origin of consumption, dropsy of the lungs, dry asthma, mesenteric struma, and water in the brain, can frequently be traced to a severe and protracted hooping cough.

The Treatment.—In the therapeutic treatment of this disease, we are guided in our indications by three circumstances; the constitution of the patient, the intensity and character of the symptoms, and the specific nature of the disease itself.

Though the abstraction of blood be in general inadvisable in all purely spasmodic diseases, yet in hooping cough, when the patient is of a plethoric habit, and there is reason to apprehend from the symptoms either that inflammation of the lungs is present, or threatens to supervene, we are not to delay having recourse to bleeding. Leeches in general will suffice, and we may apply them either to the lower part of the neck, or to the chest, as symptoms may point out. Blisters are also of great use, not only in cases accompanied with pneumonia, but as external irritants, that tend to counteract the spasm. But where there is no plethora, or inflammatory action present, we are then to direct our attention to subdue and remove the proximate cause of the disease itself—in other words, the spasmodic affection of respiratory organs. One of the most powerful antispasmodics in

hooping cough is an emetic ; and we find that Nature herself spontaneously has recourse to vomiting as an immediate means of putting a stop to the paroxysm. Either tartar emetic, or ipecacuanha, combined with the acetate of scilla, may be administered for this purpose, for all three, besides being emetics, are expectorants. In obstinate cases, belladonna is of great use. Its action is chiefly confined to the muscular system, or *motor* nerves, and it exerts a powerful influence in controlling their irregular movements. This medicine is best given in the form of tincture, and we have found both Mr. Blacket's Saturated, and Rauque's Ethereal Tincture, equally manageable. (32, 33.)

There is a circumstance which would lead to the supposition that the spinal marrow is more intimately connected with hooping cough than we are quite able to explain ; and that is, that external applications are more beneficial in this disease when used to the dorsal portion of the spine, than to any part of the chest.* Blisters exemplify this fact, as well as embrocations and counter-irritants. Garlic vinegar is a popular embrocation, and not a bad one : tartar emetic ointment is employed in hooping cough as a counter-irritant, but, in our opinion, a mustard poultice is preferable, because it can be so often repeated without producing either pustulation or vesication, at the same time that it is speedily and powerfully rubefacient. Andral's embrocation for asthma, is also exceedingly useful as a pustulant in this disease. (34.)

Opium given internally always produces a pernicious effect in hooping cough, by checking expectoration without quieting the cough ; but the same objections do not apply to morphia used endermically, and half a grain of the acetate, rubbed up with starch, may

(32) Mr. Blacket's Formula.—℞ Extr. Belladonnæ, ℥x. ; Spt. Vini rect. ℥j. Macera. Half a drop night and morning is sufficient for a dose, which may be given in Gum Tragacanth and water.

(33) M. Rauque's (of Orleans) Ethereal Tincture. Infunde pulv. foliorum Atropæ Belladonnæ ℥ii. in Ætheris Sulph. ℥vj. per dies tres, deinde cola. Sit dosis ℥vi.—xx. bis terve die.

* There are certain anomalous neuralgic affections sometimes met with, both of the abdomen and side, in which the same fact holds good ; and the remarkable circumstance in these cases is, that if the finger be passed firmly and steadily down the spine so as to make pressure on each separate bone, you will almost to a certainty be able to detect a point of great tenderness in some one of the vertebrae, which, if forcibly pressed upon, will aggravate the intercostal or abdominal neuralgia.

This interesting pathological fact I have been able to detect in a considerable number of instances, and not the least important circumstance connected with it is, that the greatest benefit has been obtained in these cases from blistering the vicinity of the affected vertebra, and little or none from any means applied to the principal seat of pain complained of.

Very lately I traced the same affection existing in one of the upper dorsal vertebrae, in the case of a lady suffering under, and subject to, spasmodic asthma.

Now, we all know the relation which exists between the diaphragmatic and other nerves distributed to the respiratory muscles and the spinal marrow. It therefore remains to be determined what are the diseases that are dependent on this direct relation, and whether some of them may not have their original seat in the *medulla spinalis* ?

(34) ℞ Olei Tigllii, ℥xx. ; Olei Amygd. ℥i. M.

be sprinkled on a blistered surface over the precordia often with great advantage in the chronic stage of this disease.

Change of air, in obstinate cases, is another means resorted to, and at times with much benefit: while at others it is tried without the least amendment. Nevertheless, it must be acknowledged, that in no class of diseases is the influence of local climate more strongly evinced than in the spasmodic affections of the lungs; at the same time it must be admitted, that there is nothing apparently more capricious than this very influence, since the air that in some is so apt to produce disordered respiration, is to others the very air that affords relief and exemption. This holds good with asthma in particular; since there are many, for example, who are always subject to attacks of the spasmodic form of this disease, while they reside in London, who get rid of it almost the instant they quit it.

CHAPTER X.

OF LARYNGITIS CATARRHALIS, OR A HOARSENESS; LARYNGITIS INTERSTITIALIS, OR PHLEGMONOUS LARYNGITIS; AND LARYNGITIS PSEUDO-MEMBRANACEA, OR CROUP.

THE larynx, or organ of voice, is subject to three inflammatory affections not less different in nature than character. The first consists in a simple inflammation of its mucous lining, affecting persons after, as well as before, the age of puberty; the second is likewise an inflammation, but appears to have its seat beneath the mucous membrane, involving, in fact, the interstitial cellular membrane that connects the muscular fasciculi of the larynx together, and confines its attacks to adults; while the third is an inflammation of the larynx of a specific nature, wherein, judging by its morbid results, it would seem the proper mucous apparatus of the organ is not concerned, or if it be, the effect of the diseased action is to change, completely, the ordinary character of its secretion.

The first of these affections is denominated Catarrhal Laryngitis; the second may be called Phlegmonous, or Interstitial Laryngitis; and the last is Croup.

When simple inflammation attacks the mucous membrane of the larynx, we have what is familiarly called "Hoarseness" produced, which runs the usual course of the mucous affections; that is, the natural secretion is first of all checked, then it becomes abundant, thin, and acrid, and, finally, thick and viscid. From the contiguity of the membrane to the muscular fasciculi of the larynx, its tumefaction impedes their movements, as well as narrows the air-passage; and, hence proceeds the alteration of the voice in this disease, varying between the grave and husky tone which we call hoarseness, and a scarcely audible whisper.

When the inflammation is seated lower down, affecting the mucous follicles of the *trachea*, or windpipe, the disease is called *Tracheitis*, and is denoted by a sense of painful uneasiness and huskiness in the part. Cough attends both these affections, and is entirely a sympathetic symptom, excited by the *consensus* existing between the entrance of the air-passages and the expiratory muscles. The great sensibility of the upper portion of the air-tube is to be regarded as a sentinel stationed by nature, to guard its aperture against the approach of any thing noxious to the lungs; and though, in this instance, instinct be mistaken in the nature of the offending cause, we cannot the less admire the repulsive manifestation of the power instigating the cough—in reality, it is the irritation of the inflammation that sympathetically excites it.

Catarrhal laryngitis is usually attended with some febrile symptoms; which cease after a day or two. The treatment of it is as simple as its nature—a cathartic, some demulcent mixture (35), and a liniment and piece of flannel to the throat, are all that are necessary for its removal.

But it is often very different with the second variety of laryngitis we come to notice; that which effects the interstitial cellular membrane. It is a disease requiring the most prompt and energetic treatment; not from the intensity or extent of the inflammation, for that were a trifle, were it seated in a part of no vital importance; but when we recollect how small a degree of tumefaction is sufficient to close up the entrance of the glottis, we cannot wonder at the facility and suddenness with which suffocation ensues. Hence the extreme symptoms of this disease are frightful; the patient gasps for breath, the countenance expresses the utmost anxiety, the lips are blue, and the face swollen.

From the slightly alarming symptoms with which this often fatal disease commences, it frequently attains a dangerous degree of intensity before its real nature is apprehended. The redness of the fauces is trifling, and bears no proportion to the obstruction to breathing felt at the upper part of the glottis. This is a circumstance that ought to excite our suspicion; and as soon as we discover the nature of the disease, we are forthwith to adopt the strongest antiphlogistic measures, especially large and repeated bleedings, both general and topical. The system is also to be put under the immediate influence of calomel and opium; giving two grains of the former, and a quarter of a grain of the latter, every two hours; and, should there be the least danger of suffocation, tracheotomy should be performed. Indeed, this operation, so exceedingly simple in itself, is usually too long delayed; for as the whole danger lies in the risk of sudden suffocation, no sooner is an entrance to the air made below the seat of the disease, than the danger ceases, and we can pursue our mode of

(35) R Mucil. Acaciæ, ℥iii.; Syrupi Limonis, ℥i.; Tinct. Tolu, ℥ss.; Aquæ font. ℥ii.; M. Capiat cochl. ampla duo tertiâ quâque horâ.

A pleasant demulcent drink may be made of a decoction of liquorice root; to which, some currant jelly or lemon syrup may be added.

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treatment, not only with greater security, but with more success. Dr. Graves recommends the touching of the inflamed fauces with a solution of the nitrate of silver, in the proportion of ten grains to an ounce of water; and I do not know a means that allays irritable inflammation more powerfully, or which more effectually prevents its spreading.

The third variety of laryngitis is, perhaps, still more important, because more prevalent, than the last—we mean, croup; a disease which ordinarily is met with affecting persons under the age of puberty.

Croup, until lately, was considered by medical writers as a specific inflammatory disease, solely affecting the larynx; and, hence, Cullen calls it “*Cynanche Laryngea*;” but the more accurate investigations of some of the modern French pathologists, and particularly those of Bretonneau, have shown that its sphere of action is much more extensive.

When the disease is confined almost entirely to the larynx, the French writers have designated it by the name of *Pseudo-membranous Laryngitis*, or *Croup*, strictly so called, if the stridulous noise, made in coughing and speaking, is to be deemed its peculiar characteristic. But as the formation of false membranes in the air-passages is the more correct pathological distinction of the disease,* and as these not unfrequently form in the trachea and its branches, the bronchi, without including the larynx, the absence of the ringing noise does not vary the nature of the inflammation affecting these parts, however well it may denote its particular seat when present. We, hence, perceive why *croup*, as a generic term, is apt to mislead us; for while the disease, in some instances, shall affect either the larynx alone, or the larynx, trachea, and bronchi, all at the same time, and thus preserve the peculiar *croupy* noise, from which it takes its familiar name, it will, in other instances, as we have already remarked, leave the larynx untouched, and alone affect the trachea and bronchi; in which case the croupy noise is consequently wanting. Hence, we have not only laryngeal, but tracheal and bronchial, croup, the two latter always going together.

Taking the pathognomonic character, therefore, of this specific inflammation from the false membranes that are formed in its varieties, let us now proceed to trace the symptoms of the disease, remembering that in the subsequent description, saving the shrill ringing sound of the cough and voice, which solely appertains to the larynx, all the other symptoms equally apply to tracheal, and bronchial, as to laryngeal croup.

The disease, though commencing with symptoms of no peculiar import, usually runs a rapid course; the child appears fretful and unwell for a day or two; the eyes become suffused and dull, and there is withal a cough which, usually from the first, has a peculiar, shrill

* So strong is the tendency, in this disease, to form false membranes, that they are sometimes found on the mucous lining of the nostrils, gullet, stomach, and intestines.

sound. To these symptoms a sense of tightness about the larynx is speedily superadded, accompanied generally with some degree of pain and tenderness felt especially on pressure, and the breathing becomes difficult and wheezing; sometimes, this last symptom is experienced for a day or two before any of the others.

One peculiarity of this inflammation of the air-passages is, that there is little or no mucus secreted during its course, or if it occasionally take place, it is to no extent; hence the rattling noise heard in simple catarrhal inflammation of the air-tubes does not occur in croup, or, at most, very slightly.

As the disease advances, the difficulty of breathing greatly increases, when, independent of the ordinary muscles of respiration, the extraordinary are called into play; those respiratory muscles, indeed, which never do act but under circumstances of great difficulty of breathing, and by a strong voluntary effort; such as the sterno-cleido-mastoidei, the scaleni, and serrati. The concluding symptoms of croup are often frightful to witness, from the violent exertions made to carry on respiration. The pulse becomes small, frequent, irregular, and, finally, intermittent. Towards its close, there is scarcely any cough, but what little there is still preserves its characteristic sound; the voice is entirely lost, while the wheezing during the inspirations becomes stronger and more laborious. The more the symptoms increase in violence, the greater is the sinking of the strength, from which the patient rallies only on account of the agony he suffers from the sense of impending suffocation. He is then seen making every effort to breathe, bending his head back, and putting his hand to the front of his neck, as if he would tear something away that is stifling him. In this last extremity, every muscle subservient to respiration is called into action, and appears in a state of convulsive contraction, not excepting those even of the neck.

In consequence of the violent efforts to breathe, the whole body becomes covered with perspiration. From the stagnation of the blood in the lungs, the face is at first tumid and red, but as this continues and increases, the colour changes to a purple hue; the pulse, which in the beginning laboured, now sinks rapidly; at length, Nature, unable to sustain the conflict longer, yields, and the patient expires in a state of inexpressible suffering.

The voice, as has been said, has a shrill ringing sound, resembling that from a brazen tube, or the crowing of a cock, and the attendant cough partakes of the same peculiar character. If any thing is expectorated, it is not muculent, but of a purulent character—a circumstance, by the way, which is always to be regarded as a bad symptom. With the purulent matter pieces of the false membrane are not unfrequently mixed, and when this takes place to any extent, it is usually followed by considerable relief. If no relapse ensues, the patient, after having expectorated the whole of the membranous formations, not unfrequently recovers.

There are circumstances which make it not improbable that these formations are sometimes removed by absorption; and the cele-

brated German anatomist and physiologist, Söemmering, has a preparation in his museum, which demonstrates that this disease is sometimes cured by the false membrane forming an organized adhesion to the proper mucous lining of the air-tubes.

Croup, when severe, usually terminates fatally about the third or fourth day, but death has been known to ensue within twenty-four hours from the attack.

When the disease terminates favourably, recovery is seldom completed before the end of a fortnight, or more.

From the commencement to the termination of this very frequently fatal disease, there is no preternatural redness observable in the fauces ; neither does any difficulty of deglutition accompany it. In its greatest severity, or in its worst stage, there is never any delirium present.

Our prognosis in croup requires always to be guarded, first, from the difficulty and uncertainty of controlling the symptoms, and, secondly, from the disease being apt to turn out severe, although the character it first assumed may have been slight.

Several indications have been regarded as critical, such as the breaking out of a general and profuse perspiration, an eruption on the skin, or a sediment in the urine ; but none of them are to be depended upon, and even when they are followed by relief, it will be found that these incidents have been preceded by some changes more certainly indicative of amendment ; such as by the pulse becoming fuller and more steady, by the breathing being freer and less hurried, and by the cough and the peculiar sound made by it, being in the one instance less severe and frequent, and in the other, by the stridulous noise becoming less perceptible. It is these alone which are to be regarded as favourable prognostics ; and if a critical sweat, or looseness, or deposition in the urine accompany these changes, this is confirmatory of the favourable opinion we are now authorized to form from the amendment of the symptoms. The expectoration of the membranes is also to be regarded as a desirable event, although, in a prognostic point of view, it cannot so much be relied upon.

With respect to the anatomical characters of croup, the first most obvious and most constant alteration in the healthy anatomy of the parts is the albuminous exudation which forms the false membranes lining the air-passages.

When the extent of this is confined to the orifice of the glottis and its vicinity, the little white laminæ of which it consists are usually very adherent, and are covered with the epithelium, similar to what is sometimes observable in certain varieties of faucitis ; and this is more especially the case when the patient has been quickly carried off by the disease : but if death has not ensued until several days after its invasion, the epithelium, or internal scarf skin, is often, indeed I may say always destroyed, and then the false membrane is laid bare.

In the interior of the larynx these albuminous exudations are like-

wise very adherent ; but they lie above or over the epithelium ; and between the two, a frothy and puriform mucus is often found.

Sometimes the inner surface of the larynx alone is encrusted with this membranous production ; oftentimes it is prolonged into the trachea, where it either forms a complete tube, or a simple plate of it is applied to the anterior or posterior face of this organ ; and, at other times again, these prolongations extend so far as to reach the very extremities of the smallest air-tubes.

This false formation is loose in the trachea, floating, as it were, between two layers of puriform matter, while in the bronchi it is adherent.

But, independent of the membranous concretion, the trachea and bronchi are often filled with a light green, almost purulent, mucus ; which is found sometimes between the false membrane and the parietes of the air-passages ; at other times, in the middle of the membranous tube only.

The characters which the mucous membrane presents below the false membrane are not less interesting or important. The epiglottis and the borders of the glottis are usually red and swollen ; while the larynx and a part of the trachea are seen speckled with reddish spots, distributed, for the most part, in longitudinal lines.

But these latter appearances are not invariably met with ; for in very young children, who have died of croup, there is sometimes no redness to be perceived, either in the larynx or trachea.

With respect to the causes of this disease, it has been observed that it prevails chiefly in cold and moist climates, and is more usually met with by the sea-side, in the vicinity of lakes and the banks of rivers, and in damp valleys, more than in open dry plains, or on elevated situations. It is not a disease of any particular season of the year, unless when conjoined with malignant sore throat ; and then it most frequently occurs in the middle of summer, when catarrhal affections are rare.

Croup, properly so called, although more particularly a disease of infancy, sometimes affects adults : the illustrious Washington is said to have died of this disease. In children, its most common period of attack is between the eighth and tenth year.

Before proceeding to point out the means of treatment in this disease, it is necessary to caution the young practitioner against adopting the notion that every inflammatory affection of the larynx and trachea, attended with a croupy cough, is to be accounted a form of croup. Although the disease has obtained its name from this symptom, it only furnishes another example of the inaccuracy and impropriety of naming a disease from any one symptom in particular. It is, as we have more than once repeated, the pathognomonic character of this disease to form false membranes ; and, hence, its most appropriate denomination is that given to it by the French pathologists—*Pseudo-membranous Laryngitis*.

A distinctive appellation of this kind becomes the more necessary, from the *croupy* noise occurring in other affections of the air-pas-

sages of children that are purely catarrhal, in which no false membranes are ever formed. To be aware of this circumstance is not merely of use nominally ; it is of practical importance ; and, with common care, we shall be enabled, for the most part, to distinguish between the real disease and its resemblance, by attending to the following circumstances, pointed out by Bretonneau :—

Firstly, this false form of croup usually comes on towards evening or during the night by a dry, noisy, hoarse, and wheezing cough ; the child appears almost suffocated, as if it had swallowed some foreign body which had lodged in the wind-pipe ; in fact, the disease commences with symptoms similar to those with which croup ends, and it is only towards the decline of it that the croupy noise is made in coughing. The above symptoms continue for a few hours and then cease ; the child does not cough during the day, but assumes its ordinary vivacity : but as evening comes on, the cough and other symptoms return, but in a less aggravated form. Another distinguishing character of false croup is to be drawn from the age of the patient. We have already observed, that the most usual age for croup to appear was from eight to ten, but its false resemblance is most commonly seen affecting children much younger, that is, infants of a year old up to five or six ; another of its peculiarities is, that it is more frequently observed to go through a whole family, affecting all of them successively, than croup, and some children are so organised as to have this false form of the disease two, or even three, times, a circumstance never observable in true croup : it runs its course also more speedily, and, as may have been perceived from the description we have given of its course and character, it is much less dangerous in its nature than true croup.

Of the Treatment of Croup.

In the treatment of this disease there are three principal indications to be attended to :—in the first, we have for our object the diminution of the inflammation, and the prevention, if possible, of the formation of the false membrane ; in the second endeavour, to facilitate the detachment and the solution of the pseudo-membranous exudation ; and in the third, to provoke the expectoration or expulsion of the detached laminae, or of the mucosities, the product of their dissolution.

To fulfil the first indication completely is almost always out of our power : we speak in reference to the prevention of the false membranes ; for it is a fact, now very fully ascertained, that these are not only formed with great rapidity, but also that they are among the very first pathological effects of the diseased action. However, though this endeavour on our part be so very difficult, and nearly next to impossible, to accomplish, this circumstance is not to make us dilatory in adopting vigorous antiphlogistic means to subdue, or, at least, control, the inflammation, since, in attaining either point, we not merely lessen the danger proceeding from it, but check, if we

cannot altogether stop, the formation of the abscessitious membranes. We, therefore, resort to bleeding, both general and topical ; we exhibit emetics ; and we employ derivatives in the form of blisters, sinapisms, and the warm bath. By such means we diminish the afflux of blood to the parts affected, and thus, as a consequence, lessen the spasm which results from it. Of the two modes of abstracting blood, the general is to be preferred, for, independent of its more powerful influence in overcoming the inflammation, the pain occasioned by leeches, and the fright produced at the mere sight of them, often cause children to cry violently, and, by thus straining the larynx, counteracts any good effects that might ensue.

Bleeding *ad deliquium* has been strongly recommended by Dr. Chapman, an eminent physician in Pennsylvania, in the early stage of croup. Dr. Chapman says, "When pushed to this extent, I may almost say that venesection is invariably successful: as yet I have never known one instance in which it failed. The moment that syncope takes place, the hoarseness, cough, impeded respiration, and fever disappear."* It is obvious, also, that general bleeding is still more advisable when the disease is complicated with inflammation of the air-tubes, or of the lungs.

Emetics are exceedingly beneficial in croup. Even if they do not accelerate the resolution of the inflammation, they seldom fail of relieving, at least for a time, the spasm which effects the muscles of the larynx, and the sense of suffocation occasioned by it. In the selection of them, we are to choose those that act promptly : the tartarised antimony is, perhaps, of most benefit at the commencement of the disease ; some give a preference to the sulphate of zinc or copper, and either is certainly a very advisable emetic in all those cases where we are anxious to preserve and sustain the patient's strength as much as possible by not inducing any great degree of nausea—an effect which always has the effect of diminishing the vital powers, and ought, therefore, to be avoided at an advanced period of the disease.

Derivatives, not of an irritating nature, should be used at the same time with the above means, such as pediluvium, emollient cataplasms and fomentations to the lower extremities, especially where there is any considerable spasmodic irritability about the larynx.

Having subdued, by the above means, the activity of the first, or inflammatory stage of the disease, we are now to direct our attention to accomplish the second indication pointed out, namely, the detachment or dissolution of the fibrinous exudations that coat the inner surface of the air-passages.

The manner in which we endeavour to effect this object is by promoting the natural secretion of the mucous from the laryngeal and tracheal follicles, by which the adhesions of the false membranes become dissolved and detached. Among the medicines found most effectual in fulfilling this intention are the mercurial, and, in particular, calomel. From half to a whole grain may be given every hour

* "Thoughts on the Pathology and Treatment of Cynancho Trachealis, or Croup."

often with powerful efficacy, and without any risk of exciting salivation ; for it is a fact of which all medical men are aware, that both infants and children can take calomel, to the extent of a drachm a-day even, without being salivated. To the exhibition of calomel internally may be conjoined mercurial inunction on the lateral parts of the neck, taking care that there be no inflammation of the sub-maxillary glands, for then there would be danger of their suppurating.

There is an intimate sympathy among the whole of the mucous tissues. This fact we have already taken many opportunities, in the preceding pages, to exemplify ; and its importance and practical utility must not be overlooked nor disregarded in the present instance. We are, therefore, called upon to attend to the state of the bowels ; so that, by exciting their action, and that of their mucous follicles, we may not only remove a source of irritation by their due evacuation, but likewise, through sympathy, institute a similar action in the follicles of the larynx and trachea.

There are various other remedies that may be judiciously resorted to as auxiliaries, such as the oxymel of squill, the ammoniacal mixture, ipecacuanha wine, and the tartar emetic, in minute doses, all of which often second the operation of calomel in promoting the secretion and dilution of the mucus, and hence the detachment of the coagulable lymph.

In treating croup in which much spasm prevails, we must direct our attention to this character of the disease, and call to our aid the powers of camphor, assafoetida, and the ethers, to control the vehemence of the spasmodic paroxysms ; and in this enumeration we must not neglect to include the quieting powers of the warm bath, an antispasmodic always so safe, and frequently so efficacious.

In noticing the antispasmodics, it will be observed that we have not included opium ; and the reason is, that its employment is almost invariably pernicious in every form and stage of croup. Its action is to check that which we so earnestly desire to effect—the separation of the false formations by the secretion of mucus beneath them. Opium likewise is apt to increase the difficulty of breathing, and, by inducing stupor, to diminish the power and effort of the lungs to eject the detached portions of membrane.

The inhalations of medicines through the medium of the steam of hot water, is another of the means that have been recommended to forward the separation of the membranous concretions ; and it is certainly a very advisable measure where the patient is old enough to make use of it. Ether and vinegar are those mostly resorted to, and when the patient is too young to practice inhalation, fumigation of the apartment with the same evaporable liquids has been employed as a substitute.

The third and last indication remaining to be noticed is, the means of accomplishing the expulsion of the false membranes, when, after their detachment, they have not been dissolved into mucosity and expectorated, nor yet removed by the absorbents.

It is in this stage of the disease that we again obtain advantage from the use of emetics, provided the strength of the patient be not

too far enfeebled, nor any inflammation of the stomach present to prevent our employing them.

The repeated succussions produced by the action of vomiting, have not unfrequently been the happy means of bringing about the expulsion of the membranes choking up the air-passages; particularly when, through the treatment pointed out above, they have become detached, and float loose into the larynx and trachea. Should the state of circumstances prohibit the employment of emetics, or should they fail in producing vomiting, we are then justified, in extreme cases, in inducing this effect by irritating the fauces with a feather; some writers, especially among the French, have great confidence in this means, and relate instances of its having been practised with the happiest results.*

The inhalation of vinegar may be again resorted to in this stage; and there is yet another means which is recommendable for its safety, and not less so for its ingenuity—and that is, the use of sternutatories, blown up the nostrils of children by means of a quill, or glass tube. This is entirely a French practice, and to them is undoubtedly due the merit of suggesting and employing it. Sneezing is entirely an act of the respiratory muscles—a sudden and powerful spasmodic expiration, in fact; and, acting as it does directly through the whole length of the air-passages, the act of sneezing has frequently effectuated the expulsion of the loose detached membranes within them.

We have but one more word to say on the treatment of croup, and that is with respect to tracheotomy. No means of relief, at first sight, seems more feasible than that of establishing an artificial aperture to carry on respiration, when the natural one becomes blocked up by false formations; and, could this be effected below the seat of obstruction, our most sanguine expectations of saving the patient's life might, in numerous instances, be realised. But, since *post mortem* examinations, no less than the result of the experiment, have proved how futile our *à priori* reasonings on the subject are, this mode of treatment is now rarely had recourse to. The operation has undergone various ingenious modifications, but with no more fortunate issue. The false membranes almost invariably extend much below the larynx; and hence any opening made into this part, or even into the windpipe itself, only mitigates the urgency of the symptoms for a moment. Medical men, therefore, have almost entirely abandoned tracheotomy in croup, and that for the best of reasons—its insufficiency and uselessness: since, in most cases in which it might seem to be required, it cannot reach the evil it is meant to remove.

* From the difficulty of provoking vomiting in croup, it would appear that there exists a kind of morbid counter-irritation to the operation of an emetic; and it would be an interesting point to determine through what particular nervous influence this takes place.

THE
EPIDEMICS OF THE MIDDLE
AGES:

FROM THE GERMAN OF

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PHILADELPHIA, AND ZURICH.

NO. I.

The Black Death

IN THE FOURTEENTH CENTURY.

TRANSLATED BY

B. G. BABINGTON, M.D. F.R.S.

PHILADELPHIA:
HASWELL, BARRINGTON, AND HASWELL.

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TRANSLATOR'S PREFACE.

7

IN reading Dr. Hecker's account of the Black Death which destroyed so large a portion of the human race in the fourteenth century, I was struck, not only with the peculiarity of the Author's views, but also with the interesting nature of the facts which he has collected. Some of these have never before been made generally known, while others have passed out of mind, being effaced from our memories by subsequent events of a similar kind, which, though really of less magnitude and importance, have, in the perspective of time, appeared greater, because they have occurred nearer to our own days.

Dreadful as was the pestilence here described, and in few countries more so than in England, our modern historians only slightly allude to its visitation:—Hume deems a single paragraph sufficient to devote to its notice, and Henry and Rapin are equally brief.

It may not then be unacceptable to the medical, or even to the general reader, to receive an authentic and somewhat detailed account of one of the greatest natural calamities that ever afflicted the human race.

My chief motive, however, for translating this small work, and at this particular period, has been a desire that, in the study of the causes which have produced and propagated general pestilences, and of the moral effects by which they have been followed, the most enlarged views should be taken. The contagionist and the anti-contagionist may each find ample support for his belief in particular cases; but in the construction of a theory sufficiently comprehensive to explain throughout the origin and dissemination of universal disease, we shall not only perceive the insufficiency of either doctrine, taken singly, but after admitting the combined influence of both, shall even then find our views too narrow, and be compelled, in our endeavours to explain the facts, to acknowledge the existence of unknown powers, wholly unconnected either with communication by contact or atmospheric contamination.

I by no means wish it to be understood, that I have adopted the author's views respecting astral and telluric influences, the former of which, at least, I had supposed to have been, with alchemy and magic, long since consigned to oblivion; much less am I prepared to accede to his notion, or rather an ancient notion derived from the East and revived by him, of an organic life in the system of the universe. We are constantly furnished with proofs, that that which affects life is not itself alive; and whether we look to the earth for exhalations, to the air for electrical phenomena, to the heavenly bodies for an influence over our planet, or to all these causes com-

bined, for the formation of some unknown principle noxious to animal existence, still, if we found our reasoning on ascertained facts, we can perceive nothing throughout this vast field for physical research which is not evidently governed by the laws of inert matter, nothing which resembles the regular succession of birth, growth, decay, death, and regeneration, observable in organized beings. To assume therefore, causes of whose existence we have no proof, in order to account for effects which, after all, they do not explain, is making no real advance in knowledge, and can scarcely be considered otherwise than an indirect method of confessing our ignorance.

Still, however, I regard the author's opinions, illustrated as they are by a series of interesting facts diligently collected from authentic sources, as, at least worthy of examination before we reject them, and valuable, as furnishing extensive data on which to build new theories.

I have another, perhaps I may be allowed to say a better, motive for laying before my countrymen this narrative of the sufferings of past ages,—that by comparing them with those of our own time, we may be made more sensible how lightly the chastening hand of Providence has fallen on the present generation, and how much reason, therefore, we have to feel grateful for the mercy shown us.

The publication has, with this view, been purposely somewhat delayed, in order that it might appear at a moment when it is to be presumed that men's thoughts will be especially directed to the approaching hour of public thanksgiving, and when a knowledge of that which they have escaped, as well as of that which they have suffered, may tend to heighten their devotional feelings on that solemn occasion.

When we learn that, in the fourteenth century, one quarter, at least, of the population of the old world was swept away in the short space of four years, and that some countries, England among the rest, lost more than double that proportion of their inhabitants in the course of a few months, we may well congratulate ourselves that our visitation has not been like theirs, and shall not justly merit ridicule, if we offer our humble thanks to the "Creator and Preserver of all mankind" for our deliverance.

Nor would it disgrace our feelings, if, in expiation of the abuse and obloquy not long since so lavishly bestowed by the public, we should entertain some slight sense of gratitude towards those members of the community, who were engaged, at the risk of their lives and the sacrifice of their personal interests, in endeavouring to arrest the progress of the evil, and to mitigate the sufferings of their fellow men.

I have added, at the close of the Appendix, some extracts from a scarce little work in black letter, called "A Boke or Counseill against the Disease commonly called the Sweate or Sweatyng Sicknesse," published by Caius in 1552. This was written three years before his Latin treatise on the same subject, and is so quaint,

and, at the same time, so illustrative of the opinions of his day, and even of those of the fourteenth century, on the causes of universal diseases, that the passages which I have quoted will not fail to afford some amusement as well as instruction. If I have been tempted to reprint more of this curious production than was necessary to my primary object, it has been from a belief that it would be generally acceptable to the reader to gather some particulars regarding the mode of living in the sixteenth century, and to observe the author's animadversions on the degeneracy and credulity of the age in which he lived. His advice on the choice of a medical attendant cannot be too strongly recommended, at least *by a physician*; and his warning against quackery, particularly the quackery of *painters*, who "scorne (*quære* score?) you behind your backs with their medicines, so filthy that I am ashamed to name them," seems quite prophetic.

In conclusion, I beg to acknowledge the obligation which I owe to my friend Mr. H. E. Lloyd, whose intimate acquaintance with the German language and literature, will, I hope, be received as a sufficient pledge that no very important errors remain in a translation which he has kindly revised.

P R E F A C E.

WE here find an important page of the history of the world laid open to our view. It treats of a convulsion of the human race, unequalled in violence and extent. It speaks of incredible disasters, of despair and unbridled demoniacal passions. It shows us the abyss of general licentiousness, in consequence of an universal pestilence which extended from China to Iceland and Greenland.

The inducement to unveil this image of an age, long since gone by is evident. A new pestilence has attained almost an equal extent, and though less formidable, has partly produced, partly indicated, similar phenomena. Its causes and its diffusion over Asia, and Europe, call on us to take a comprehensive view of it, because it leads to an insight into the organism of the world, in which the sum of organic life is subject to the great powers of Nature. Now, human knowledge is not yet sufficiently advanced to discover the connexion between the processes which occur above, and those which occur below, the surface of the earth, or even fully to explore the laws of nature, an acquaintance with which would be required, far less to apply them to great phenomena, in which one spring sets a thousand others in motion.

On this side, therefore, such a point of view is not to be found, if we would not lose ourselves in the wilderness of conjectures, of which the world is already too full ; but it may be found in the ample and productive field of historical research.

History—that mirror of human life in all its bearings, offers, even for general pestilences, an inexhaustible, though scarcely explored, mine of facts ; here too it asserts its dignity, as the philosophy of reality delighting in truth.

It is conformable to its spirit to conceive general pestilences as events affecting the whole world, to explain their occurrences by the comparison of what is similar, by which the facts speak for themselves, because they appear to have proceeded from the higher laws which govern the progression of the existence of mankind. A cosmical origin and convulsive excitement, productive of the most important consequences among the nations subject to them, are the most striking features to which history points in all general pestilences. The latter, however, assume very different forms, as well in their attacks on the general organism, as in their diffusion ; and in this respect a development from form to form, in the course of centuries, is manifest, so that the history of the world is divided into grand periods in which positively defined pestilences prevailed. As far as our chronicles extend, more or less certain information can be obtained respecting them.

But this part of medical history, which has such a manifold and powerful influence over the history of the world, is yet in its infancy. For the honour of that science which should every where guide the actions of mankind, we are induced to express a wish, that it may find room to flourish amidst the rank vegetation with which the field of German medical science is unhappily encumbered.

THE BLACK DEATH.

CHAPTER I.

GENERAL OBSERVATIONS.

THAT Omnipotence which has called the world with all its living creatures into one animated being, especially reveals himself in the desolation of great pestilences. The powers of creation come into violent collision ; the sultry dryness of the atmosphere ; the subterraneous thunders ; the mist of overflowing waters, are the harbingers of destruction. Nature is not satisfied with the ordinary alternations of life and death, and the Destroying Angel waves over man and beast his flaming sword.

These revolutions are performed in vast cycles, which the spirit of man, limited as it is, to a narrow circle of perception, is unable to explore. They are, however, greater terrestrial events than any of those which proceed from the discord, the distress or the passions of nations. By annihilations they awaken new life ; and when the tumult above and below the earth is past, nature is renovated, and the mind awakens from torpor and depression to the consciousness of an intellectual existence.

Were it in any degree within the power of human research to draw up, in a vivid and connected form, an historical sketch of such mighty events, after the manner of the historians of wars and battles, and the migrations of nations, we might then arrive at clear views with respect to the mental development of the human race, and the ways of Providence would be more plainly discernible. It would then be demonstrable, that the mind of nations is deeply affected by the destructive conflict of the powers of nature, and that great disasters lead to striking changes in general civilization. For all that exists in man, whether good or evil, is rendered conspicuous by the presence of great danger. His inmost feelings are roused—the thought of self-preservation masters his spirit—self denial is put to severe proof, and wherever darkness and barbarism prevail, there the affrighted mortal flies to the idols of his superstition, and all laws, human and divine, are criminally violated.

In conformity with a general law of nature, such a state of excitement, brings about a change, beneficial, or detrimental, according to circumstances, so that nations either attain a higher degree of

moral worth, or sink deeper in ignorance and vice. All this, however, takes place upon a much grander scale than through the ordinary vicissitudes of war and peace, or the rise and fall of empires, because the powers of nature themselves produce plagues, and subjugate the human will, which, in the contentions of nations, alone predominates.

CHAPTER II.

THE DISEASE.

THE most memorable example of what has been advanced, is afforded by a great pestilence of the fourteenth century, which desolated Asia, Europe, and Africa, and of which the people yet preserve the remembrance in gloomy traditions. It was an oriental plague, marked by inflammatory boils and tumors of the glands, such as break out in no other febrile disease. On account of these inflammatory boils, and from the black spots, indicatory of a putrid decomposition, which appeared upon the skin, it was called in Germany and in the northern kingdoms of Europe, *the Black Death*, and in Italy, *la Mortalega Grande*, *the Great Mortality*.*

Few testimonies are presented to us respecting its symptoms and its course, yet these are sufficient to throw light upon the form of the malady, and they are worthy of credence, from their coincidence with the signs of the same disease in modern times.

The imperial writer, Kantakusenos,† whose own son, Andronikus, died of this plague in Constantinople, notices great imposthumes‡ of the thighs and arms of those affected, which, when opened, afforded relief by the discharge of an offensive matter. Buboes, which are the infallible signs of the oriental plague, are thus plainly indicated, for he makes separate mention of smaller boils on the arms and in the face, as also in other parts of the body, and clearly distinguishes these from the blisters,§ which are no less produced by plague in all

* *La Mortalega Grande. Matth. de Griffonibus.* Muratori. Script. rer. Italicar. T. XVIII. p. 167. D. They were called by others Anguinalgia. *Andr. Gratiol.* Discorso di peste. Venet. 1576, 4to. Swedish; *Diger-döden Loccenii* Histor. Suecan L. III. p. 104.—Danish; *den sorte Dod. Pontani.* Rer. danicar Histor. L. VIII. p. 476—Amstelod: 1631, fol. Icelandic: *Svatur Daudi.* Saabye, Tagebuch in Grönland. Introduction XVIII. *Mansa*, de Epidemiis maxime memorabilibus, quae in Daniâ grassatae sunt, &c. Part. I. p. 12. Havniae, 1831, 8.—In Westphalia the name of *de groete Doet* was prevalent. Meibom.

† *Joann Cantacuzen Historiar.* L. IV. c. 8. Ed. Paris. p. 730. 5. The emperor has indeed copied some passages from Thucydides, as *Sprengel* justly observes, (Appendix to the *Geschichte der Medicin.* Vol. 1. H. I. S. 73.) though this was most probably only for the sake of rounding a period. This is no detriment to his credibility, because his statements accord with the other accounts.

‡ *Απτεσας μεγλαι.*

§ *Μελαιναι φλυχτιδε.*

its forms. In many cases, black spots* broke out all over the body, either single, or united and confluent.

These symptoms were not all found in every case. In many, one alone was sufficient to cause death, while some patients recovered, contrary to expectation, though afflicted with all. Symptoms of cephalic affection were frequent; many patients became stupified and fell into a deep sleep, losing also their speech from palsy of the tongue; others remained sleepless and without rest. The fauces and tongue were black, and as if suffused with blood; no beverage would assuage their burning thirst, so that their sufferings continued without alleviation until terminated by death, which many in their despair accelerated with their own hands. Contagion was evident, for attendants caught the disease of their relations and friends, and many houses in the capital were bereft even of their last inhabitant. Thus far the ordinary circumstances only of the oriental plague occurred. Still deeper sufferings, however, were connected with this pestilence, such as have not been felt at other times; the organs of respiration were seized with a putrid inflammation; a violent pain in the chest attacked the patient; blood was expectorated, and the breath diffused a pestiferous odour.

In the West, the following were the predominating symptoms on the eruption of this disease.† An ardent fever, accompanied by an evacuation of blood, proved fatal in the first three days. It appears that buboes and inflammatory boils did not at first come out at all, but that the disease, in the form of carbuncular (*anthraxartigen*) affection of the lungs, effected the destruction of life before the other symptoms were developed.

Thus did the plague rage in Avignon for six or eight weeks, and the pestilential breath of the sick, who expectorated blood, caused a terrible contagion far and near; for even the vicinity of those who had fallen ill of plague was certain death;‡ so that parents abandoned their infected children, and all the ties of kindred were dissolved. After this period, buboes in the axilla and in the groin, and inflammatory boils all over the body, made their appearance; but it was not until seven months afterwards that some patients recovered with matured buboes, as in the ordinary milder form of plague.

Such is the report of the courageous Guy de Cauliac, who vindicated the honour of medicine, by bidding defiance to danger; boldly and constantly assisting the affected, and disdaining the excuse of his colleagues, who held the Arabian notion, that medical aid was unavailing, and that the contagion justified flight. He saw the plague twice in Avignon, first in the year 1348, from January to August, and then twelve years later, in the autumn, when it returned

* *οσπρες εν ματα μελανα.*

† *Guidon de Cauliac* Chirurgia. Tract 11. c. 5. p. 113. Ed. Lugdun, 1572.

‡ Et fuit tantae pontagiositatis specialiter quae fuit cum sputo sanguinis, quod non solum morando, sed etiam inspiciendo unus recipiebat ab alio: intantum quod gentes moriebantur sine servitoribus, et sepeliebantur sine sacerdotibus, pater non visitabat filium, nec filius patrem: charitas erat mortua, spes prostrata.

from Germany, and for nine months spread general distress and terror. The first time it raged chiefly among the poor, but in the year 1360, more among the higher classes. It now also destroyed a great many children, whom it had formerly spared, and but few women.

The like was seen in Egypt.* Here also inflammation of the lungs was predominant, and destroyed quickly and infallibly, with burning heat and expectoration of blood. Here, too, the breath of the sick spread a deadly contagion, and human aid was as vain as it was destructive to those who approached the infected.

Boccaccio, who was an eye-witness of its incredible fatality in Florence, the seat of the revival of science, gives a more lively description of the attack of the disease than his non-medical contemporaries.†

It commenced here, not as in the East, with bleeding at the nose, a sure sign of inevitable death; but there took place, at the beginning, both in men and women, tumours in the groin and in the axilla, varying in circumference up to the size of an apple or an egg, and called by the people, pest-boils (gavoccioli). Then there appeared similar tumours indiscriminately over all parts of the body, and black or blue spots came out on the arms or thighs, or on other parts, either single and large, or small and thickly studded. These spots proved equally fatal with the pest-boils, which had been from the first regarded as a sure sign of death.‡ No power of medicine brought relief—almost all died within the first three days, some sooner, some later, after the appearance of these signs, and for the most part entirely without fever§ or other symptoms. The plague spread itself with greater fury, as it communicated from the sick to the healthy, like fire among dry and oily fuel, and even contact with the clothes and other articles which had been used by the infected, seemed to induce the disease. As it advanced, not only men, but animals fell sick and shortly expired, if they had touched things belonging to the diseased or dead. Thus Boccaccio himself saw two hogs on the rags of a person who had died of plague, after staggering about for a short time fall down dead, as if they had taken poison. In other places, multitudes of dogs, cats, fowls, and other animals, fell victims to the contagion;|| and it is to be presumed that other epizootes among animals likewise took place, although the ignorant writers of the fourteenth century are silent on this point.

In Germany there was a repetition in every respect of the same phenomena. The infallible signs of the oriental bubo-plague with

* *Deguignes, Histoire générale des Huns, des Turcs, des Moguls, &c. Tom. IV. Paris, 1758, 4to. p. 226.*

† *Decameron Giorn. I. Intro*

‡ From this period black petechiæ have always been considered as fatal in the plague.

§ A very usual circumstance in plague epidemics.

|| *Auger de Biterris, Vitæ Romanor. pontificum, Muratori Scriptor. rer. Italic. Vol. III. Pt. II. p. 556.*

its inevitable contagion, were found there as everywhere else ; but the mortality was not nearly so great as in the other parts of Europe.* The accounts do not all make mention of the spitting of blood, the diagnostic symptom of this fatal pestilence ; we are not, however, thence to conclude that there was any considerable mitigation or modification of the disease, for we must not only take into account the defectiveness of the chronicles, but that isolated testimonies are often contradicted by many others. Thus, the chronicles of Strasburg, which only take notice of boils and glandular swellings in the axillæ and groins,† are opposed by another account, according to which the mortal spitting of blood was met with in Germany ;‡ but this again is rendered suspicious, as the narrator postpones the death of those who were thus affected, to the sixth, and (even the) eighth day ; whereas, no other author sanctions so long a course of the disease ; and even in Strasburg, where a mitigation of the plague may, with most probability, be assumed, since in the year 1349, only 16,000 people were carried off, the generality expired by the third or fourth day.§ In Austria, and especially in Vienna, the plague was fully as malignant as anywhere, so that the patients who had red spots and black boils, as well as those afflicted with tumid glands, died about the third day ;|| and, lastly, very frequent sudden deaths occurred on the coasts of the North Sea and in Westphalia, without any further development of the malady.¶

To France, this plague came in a northern direction from Avignon, and was there more destructive than in Germany, so that in many places not more than two in twenty of the inhabitants survived. Many were struck, as if by lightning, and died on the spot, and this more frequently among the young and strong than the old ; patients with enlarged glands in the axillæ and groins scarcely survived two or three days ; and no sooner did these fatal signs appear, than they bid adieu to the world, and sought consolation only in the absolution which Pope Clement VI. promised them in the hour of death.**

In England the malady appeared, as at Avignon, with spitting of blood, and with the same fatality, so that the sick who were afflicted either with this symptom or with vomiting of blood, died in some cases immediately, in others within twelve hours, or at the latest, in

* Contin. altera Chronici *Guillelmi de Nangis* in *d'Acher*, *Spicilegium sive Collectio Veterum Scriptorum*, &c. Ed. de la Barre, Tom. iii. p. 110.

† "The people all died of boils and inflamed glands which appeared under the arms and in the groins." *Jac. v. Königshoven*, the oldest chronicle of Alsace and Strasburg, and indeed of all Germany. Strasburg, 1698. 4. cap. 5, § 86. p. 301.

‡ *Hainr. Rebdorff*, *Annals*, *Marq. Freher*. *Germanicarum rerum Scriptores*. Francof., 1624. fol. p. 439.

§ *Königshoven*, in loc. cit.

|| Anonym. *Leobiens. Chron.* L. VI. in *Hier. Pez.* *Scriptor. rer. Austriac.* Lips. 1721. fol. Tom. 1, p. 970. The above named appearances are here called, *rote sprinkel, swarze erhubenn und druesz under den ächsen und ze den gemächten*.

¶ *Ubb. Emmie* *rer. Frisiacar. histor.* L. XIV. p. 203. Lugd. Bat. 1616. fol.

** *Guillelmus de Nangis*.

two days.* The inflammatory boils and buboes in the groins and axillæ were recognised at once as prognosticating a fatal issue, and those who were past all hope of recovery in whom they arose in numbers all over the body. It was not till towards the close of the plague that they ventured to open, by incision, these hard and dry boils, when matter flowed from them in small quantity, and thus, by compelling nature to a critical suppuration, many patients were saved. Every spot which the sick had touched, their breath, their clothes, spread the contagion; and, as in all other places, the attendants and friends who were either blind to their danger or heroically despised it, fell a sacrifice to their sympathy. Even the eyes of the patient were considered as sources of contagion,† which had the power of acting at a distance, whether on account of their unwonted lustre or the distortion which they always suffer in plague, or whether in conformity with an ancient notion, according to which the sight was considered as the bearer of a demoniacal enchantment. Flight from infected cities seldom availed the fearful, for the germ of the disease adhered to them, and they fell sick, remote from assistance, in the solitude of their country houses.

Thus did the plague spread over England with unexampled rapidity, after it had first broken out in the county of Dorset, whence it advanced through the counties of Devon and Somerset, to Bristol, and thence reached Gloucester, Oxford, and London. Probably few places escaped, perhaps not any; for the annals of cotemporaries report, that throughout the land only a tenth part of the inhabitants remained alive.‡

From England, the contagion was carried by a ship to Bergen, the capital of Norway, where the plague then broke out in its most frightful form, with vomiting of blood; and throughout the whole country, spared not more than a third of the inhabitants. The sailors found no refuge in their ships; and vessels were often seen driving about on the ocean and drifting ashore, whose crews had perished to the last man.§

In Poland the infected were attacked with spitting of blood, and died in a few days in such vast numbers, that, as it has been affirmed, scarcely a fourth of the inhabitants were left.||

Finally, in Russia the plague appeared two years later than in

* *Ant. Wood*, *Historia et Antiquitates Universit. Oxoniens.* Oxon. 1764, fol. L. 1. p. 172.

† *Mezeray*, *Histoire de France*, Paris, 1685. fol. T. 11. p. 418.

‡ *Barnes*, who has given a lively picture of the black plague in England, taken from the Registers of the 14th century, describes the external symptoms in the following terms: knobs or swellings in the groin or under the arm-pits, called kernels, biles, blains, blisters, pimples, wheals, or plague-sores. *The Hist. of Edw. III.* Cambridge. 1688. fol. p. 432.

§ *Torfæus*, *Historia rerum Norvegicarum.* Hafn. 1711. fol. L. ix. c. 8. p. 478. This author has followed *Pontanus* (*Rerum Danicar. Historia.* Amstelod. 1631. fol.), who has given only a general account of the plague in Denmark, and nothing respecting its symptoms.

|| *Dlugoss*, *S. Longini Histor. polonic.* L. xii. Lips. 1811. fol. T. 1. p. 1086.

Southern Europe ; yet here again, with the same symptoms as elsewhere. Russian cotemporaries have recorded that it began with rigor, heat, and darting pain in the shoulders and back : that it was accompanied by spitting of blood, and terminated fatally in two, or at most, three days. It is not till the year 1360, that we find buboes mentioned as occurring in the neck, in the axillæ and in the groins, which are stated to have broken out when the spitting of blood had continued some time. According to the experience of Western Europe, however, it cannot be assumed that these symptoms did not appear at an earlier period.*

Thus much, from authentic sources, on the nature of the Black Death. The descriptions which have been communicated contain, with a few unimportant exceptions, all the symptoms of the oriental plague which have been observed in more modern times. No doubt can obtain on this point. The facts are placed clearly before our eyes. We must, however, bear in mind, that this violent disease does not always appear in the same form, and that while the essence of the poison which it produces, and which is separated so abundantly from the body of the patient, remains unchanged, it is proteiform in its varieties, from the almost imperceptible vesicle, unaccompanied by fever, which exists for some time before it extends its poison inwardly, and then excites fever and buboes, to the fatal form in which carbuncular inflammations fall upon the most important viscera.

Such was the form which the plague assumed in the 14th century, for the accompanying chest affection which appeared in all the countries whereof we have received any account, cannot, on a comparison with similar and familiar symptoms, be considered as any other than the inflammation of the lungs of modern medicine,† a disease which at present only appears sporadically, and, owing to a putrid decomposition of the fluids, is probably combined with hemorrhages from the vessels of the lungs. Now, as every carbuncle, whether it be cutaneous or internal, generates in abundance the matter of contagion which has given rise to it, so, therefore, must the breath of the affected have been poisonous in this plague, and on this account its power of contagion wonderfully increased ; wherefore the opinion appears incontrovertible, that owing to the accumulated numbers of the diseased, not only individual chambers and houses, but whole cities were infected, which, moreover, in the middle ages, were, with few exceptions, narrowly built, kept in a filthy state, and surrounded with stagnant ditches.‡ Flight was, in consequence, of no avail to the timid ; for even though they had sedulously avoided all commu-

* *W. M. Richter*, Geschichte der Medicin in Russland. Moskwa, 1813. 8. p. 215. *Richter* has taken his information on the black plague in Russia, from Authentic Russian MSS.

† Compare on this point, *Ballings* treatise "Zur Diagnostik der Lungenerweichung," Vol. XVI. ii. 3. p. 257 of lit. Annalen der ges. Heilkunde.

‡ It is expressly ascertained with respect to Avignon and Paris, that uncleanness of the streets increased the Plague considerably. *Raim. Chalin de Vinario*.

nication with the diseased and the suspected, yet their clothes were saturated with the pestiferous atmosphere, and every inspiration imparted to them the seeds of the destructive malady, which, in the greater number of cases, germinated with but too much fertility. Add to which, the usual propagation of the plague through clothes, beds, and a thousand other things to which the pestilential poison adheres,—a propagation, which, from want of caution, must have been infinitely multiplied; and since articles of this kind, removed from the access of air, not only retain the matter of contagion for an indefinite period, but also increase its activity and engender it like a living being, frightful ill-consequences followed for many years after the first fury of the pestilence was past.

The affection of the stomach, often mentioned in vague terms, and occasionally as a vomiting of blood, was doubtless only a subordinate symptom, even if it be admitted that actual hematemesis did occur. For the difficulty of distinguishing a flow of blood from the stomach, from a pulmonic expectoration of that fluid, is, to non-medical men, even in common cases, not inconsiderable. How much greater then must it have been in so terrible a disease, where assistants could not venture to approach the sick without exposing themselves to certain death? Only two medical descriptions of the malady have reached us, the one by the brave *Guy de Chauliac*, the other by *Raymond Chalin de Vinario*, a very experienced scholar, who was well versed in the learning of his time. The former takes notice only of fatal coughing of blood; the latter, besides this, notices epistaxis, hematuria and fluxes of blood from the bowels, as symptoms of such decided and speedy mortality, that those patients in whom they were observed, usually died on the same or the following day.*

That a vomiting of blood may not, here and there, have taken place, perhaps have been even prevalent in many places, is, from a consideration of the nature of the disease, by no means to be denied; for every putrid decomposition of the fluids, begets a tendency to hemorrhages of all kinds. Here, however, it is a question of historical certainty, which, after these doubts, is by no means established. Had not so speedy a death followed the expectoration of blood, we should certainly have received more detailed intelligence respecting other hemorrhages; but the malady had no time to extend its effects further over the extremities of the vessels. After its first fury, however, was spent, the pestilence passed into the usual febrile form

* *De Peste Libri tres, opera Jacobi Dalechampii in lucem editi.* Lugdani, 1552. 16. p. 35. *Dalechamp* has only improved the language of this work, adding nothing to it but a preface in the form of two letters. *Raymond Chalin de Vinario* was cotemporary with *Guy de Chauliac* at Avignon. He enjoyed a high reputation, and was in very affluent circumstances. He often makes mention of cardinals and high officers of the papal court, whom he had treated; and it is even probable, though not certain, that he was physician to Clement VI. (1342—1352), Innocent VI. (1352—and Urban the V. (1362—1370.) He and *Guy de Chauliac* never mention each other.

of the oriental plague. Internal, carbuncular inflammations no longer took place, and hemorrhages became phenomena, no more essential in this than they are in any other febrile disorders. Chalin, who observed not only the *great mortality* of 1348, and the plague of 1360, but also that of 1373 and 1382, speaks moreover of *affections of the throat*, and describes the *black spots* of plague patients more satisfactorily than any of his cotemporaries. The former appeared but in few cases, and consisted in carbuncular inflammation of the gullet, with a difficulty of swallowing, even to suffocation, to which, in some instances, was added inflammation of the ceruminous glands of the ears, with tumours, producing great deformity. Such patients, as well as others, were affected with expectoration of blood; but they did not usually die before the sixth, and sometimes, even so late as the fourteenth day.* The same occurrence, it is well known, is not uncommon in other pestilences; as also blisters on the surface of the body, in different places, in the vicinity of which, tumid glands and inflammatory boils, surrounded by discoloured and black streaks, arose, and thus indicated the reception of the poison. These streaked spots were called, by an apt comparison, *the girdle*, and this appearance was justly considered extremely dangerous.†

CHAPTER III.

CAUSES.—SPREAD.

AN enquiry into the causes of the Black Death, will not be without important results in the study of the plagues which have visited the world, although it cannot advance beyond generalisation without entering upon a field hitherto uncultivated, and, to this hour, entirely unknown. Mighty revolutions in the organism of the earth, of which we have credible information, had preceded it. From

* *Dalechamp*, p. 205—where, and at pp. 32–36, the plague-eruptions are mentioned in the usual indefinite terms: Exanthemata viridia, cærulea, nigra, rubra, lata, diffusa, velut signata punctis, &c.

† Pestilens morbi gravissimum symptoma est, quod zonam vulgo nuncupant. Ea sic fit: Postulæ nonnunquam per febres pestilentes fuscæ, nigrae, lividæ existunt, in partibus corporis a glandularum emissariis sejunctis, ut in femore, tibia, capite, brachio, humeris, quarum fervore et caliditate succi corporis attracti, glandulas in tractione replent, et attollunt unde bubones fiant atque carbunculi. *Ab iis tanquam solidus quidam nervus in partem vicinam distentam ac veluti convulsione rigentem producit, puta Brachium vel tibiam, nunc rubens, nunc fuscus, nunc obscurior, nunc virens, nunc Iridis colore, duos vel quatuor digitos latus.* Hujus summo, qua desinit in emissarium, plerumque tuberculum pestilens visitur, altero vero extremo, qua in propinquum membrum porrigitur, carbunculus. Hoc scilicet malum vulgus zonam cinctumve nominat, periculosum minus, cum hic tuberculo, illic carbunculo terminatur, quam si tuberculum in capite solum émi-neat." p. 198.

China to the Atlantic, the foundations of the earth were shaken,—throughout Asia and Europe the atmosphere was in commotion, and endangered, by its baneful influence, both vegetable and animal life.

The series of these great events began in the year 1333, fifteen years before the plague broke out in Europe : they first appeared in China. Here a parching drought, accompanied by famine, commenced in the tract of country watered by the rivers Kiang and Hoai. This was followed by such violent torrents of rain, in and about Kingsai, at that time the capital of the Empire, that, according to tradition, more than 400,000 people perished in the floods. Finally, the mountain Tsineheu fell in, and vast clefts were formed in the earth. In the succeeding year (1334), passing over fabulous traditions, the neighbourhood of Canton was visited by inundations ; whilst in Tche, after an unexampled drought, a plague arose, which is said to have carried off about 5,000,000 of people. A few months afterwards an earthquake followed, at and near Kingsai ; and subsequent to the falling in of the mountains of Ki-ming-ehan, a lake was formed of more than a hundred leagues in circumference, where, again, thousands found their grave. In Hou-kouang and Ho-nan, a drought prevailed for five months ; and innumerable swarms of locusts destroyed the vegetation ; while famine and pestilence, as usual, followed in their train. Connected accounts of the condition of Europe before this great catastrophe, are not to be expected from the writers of the fourteenth century. It is remarkable, however, that simultaneously with a drought and renewed floods in China, in 1336, many uncommon atmospheric phenomena, and in the winter, frequent thunder storms, were observed in the north of France ; and so early as the eventful year of 1333, an eruption of Etna took place.* According to the Chinese annals, about 4,000,000 of people perished by famine in the neighbourhood of Kiang in 1337 ; and deluges, swarms of locusts, and an earthquake which lasted six days, caused incredible devastation. In the same year, the first swarms of locusts appeared in Franconia, which were succeeded in the following year by myriads of these insects. In 1338, Kingsai was visited by an earthquake of ten days' duration ; at the same time France suffered from a failure in the harvest ; and thenceforth, till the year 1342, there was in China, a constant succession of inundations, earthquakes, and famines. In the same year great floods occurred in the vicinity of the Rhine, and in France, which could not be attributed to rain alone ; for, everywhere, even on the tops of mountains, springs were seen to burst forth, and dry tracts were laid under water in an inexplicable manner. In the following year, the mountain Hong-tchang, in China, fell in, and caused a destructive deluge ; and in Pien-tcheou and Leang-tcheou, after three months' rain, there followed unheard of inundations, which destroyed seven cities.

* V. Hoff. *Geschichte der natürlichen Veränderungen der Erdoberfläche*, T. II. p. 264. Gotha, 1824. This eruption was not succeeded by any other in the same century, either of Etna or of Vesuvius.

In Egypt and Syria, violent earthquakes took place; and in China they became, from this time, more and more frequent; for they recurred, in 1344, in Ven-tcheou, where the sea overflowed in consequence; in 1345, in Hi-tcheou, and in both the following years in Canton, with subterraneous thunder. Meanwhile, floods and famine devastated various districts, until 1347, when the fury of the elements subsided in China.*

The signs of terrestrial commotions commenced in Europe in the year 1348, after the intervening districts of country in Asia had probably been visited in the same manner.

On the island of Cyprus, the plague from the East had already broken out; when an earthquake shook the foundations of the island, and was accompanied by so frightful a hurricane, that the inhabitants who had slain their Mahometan slaves, in order that they might not themselves be subjugated by them, fled in dismay, in all directions. The sea overflowed—the ships were dashed to pieces on the rocks, and few outlived the terrific event, whereby this fertile and blooming island was converted into a desert. Before the earthquake, a pestiferous wind spread so poisonous an odour, that many, being overpowered by it, fell down suddenly and expired in dreadful agonies.†

This phenomenon is one of the rarest that has ever been observed, for nothing is more constant than the composition of the air; and in no respect has nature been more careful in the preservation of organic life. Never have naturalists discovered in the atmosphere, foreign elements, which, evident to the senses, and borne by the winds, spread from land to land, carrying disease over whole portions of the earth, as is recounted to have taken place in the year 1348. It is, therefore, the more to be regretted, that in this extraordinary period, which, owing to the low condition of science, was very deficient in accurate observers, so little that can be depended on respecting those uncommon occurrences in the air, should have been recorded. Yet, German accounts say expressly, that a thick, stinking mist advanced from the East, and spread itself over Italy;‡ and there could be no deception in so palpable a phenomenon.§ The credibility of unadorned traditions, however little they may satisfy physical research, can scarcely be called in question when we con-

* Deguignes Loc. cit. p. 226, from Chinese sources.

† Deguignes Loc. cit. p. 225.

‡ There were also many locusts which had been blown into the sea by a hurricane, and afterwards cast dead upon the shore, and produced a noxious exhalation; and a dense and awful fog was seen in the heavens, arising in the East, and descending upon Italy. Mansfeld Chronicle, in *Cyriac Spangenberg*, chap. 287, fol. 386. Eisleben, 1572. Compare *Staind. Chron. (?) by Schmurrer*. ("Iugens vapor magnitudine horribili boreali movens, regionem magno adspicientium terrore dilabatur.") and *Ad. von Lebenwaldt, Land-Stadt-und Hausarzney-Buch* fol. p. 15. Nuremberg, 1695, who mentions a dark, thick mist which covered the earth. *Chalin* expresses himself on this subject in the following terms:—"Coelum ingravescit, aer impurus sentitur: nubes crassae ac multae luminibus coeli obstruunt, immundus ac ignavus tepor hominum emollit corpora, exoriens sol pallescit." p. 50.

§ See Caius' account of the causes of the sweating sickness, in the Appendix.—Translator.

sider the connexion of events ; for just at this time earthquakes were more general than they had been within the range of history. In thousands of places chasms were formed, from whence arose noxious vapours ; and as at that time natural occurrences were transformed into miracles, it was reported, that a fiery meteor, which descended on the earth far in the East, had destroyed every thing within a circumference of more than a hundred leagues, infecting the air far and wide.* The consequences of innumerable floods contributed to the same effect ; vast river districts had been converted into swamps ; foul vapours arose every where, increased by the odour of putrified locusts, which had never perhaps darkened the sun in thicker swarms,† and of countless corpses, which even in the well-regulated countries of Europe, they knew not how to remove quickly enough out of the sight of the living. It is probable, therefore, that the atmosphere contained foreign, and sensibly perceptible, admixtures to a great extent, which, at least in the lower regions, could not be decomposed, or rendered ineffective by separation.

Now, if we go back to the symptoms of the disease, the ardent inflammation of the lungs points out, that the organs of respiration yielded to the attack of an atmospheric poison—a poison, which (if we admit the independent origin of the Black Plague at any one place on the globe, which, under such extraordinary circumstances, it would be difficult to doubt,) attacked the course of the circulation in as hostile a manner as that which produces inflammation of the spleen and other animal contagions that cause swelling and inflammation of the lymphatic glands.

Pursuing the course of these grand revolutions further, we find notice of an unexampled earthquake, which, on the 25th of January, 1348, shook Greece, Italy and the neighbouring countries. Naples, Rome, Pisa, Bologna, Padua, Venice, and many other cities suffered considerably : whole villages were swallowed up. Castles, houses, and churches, were overthrown, and hundreds of people were buried beneath their ruins.‡ In Carinthia, thirty villages, together with all the churches, were demolished ; more than a thousand corpses were drawn out of the rubbish ; the city of Villach was so completely destroyed, that very few of its inhabitants were saved ; and when the earth ceased to tremble, it was found that mountains had been moved from their positions, and that many hamlets were left in ruins.§ It is recorded, that during this earthquake, the wine in the casks became turbid, a statement which may be considered as furnishing

* *Mezeray Historie de France*, Tom. II. 418. Paris, 1685. *V. Oudegheerst's Chroniques de Flandres*. Antwerp, 1571, 4to. Chap. 175, f. 297.

† They spread in a direction from East to West, over most of the countries from which we have received intelligence. Anonym. *Leobien's Chron.* Loc. cit.

‡ *Giov. Villani Istorie Fiorentine*, L. XII. chap. 121, 122, in *Muratori T. XIII.* pp. 1001, 1002. Compare *Barnes Loc. cit.* p. 430.

§ *I. Vitoduran. Chronicle*, in *Fuseli. Thesaurus Hister. Helvet. Tigur. 1735*, fol. p. 84.

a proof, that changes causing a decomposition of the atmosphere had taken place; but if we had no other information from which the excitement of conflicting powers of nature during these commotions, might be inferred, yet scientific observations in modern times have shown, that the relation of the atmosphere to the earth, is changed by volcanic influences. Why then, may we not, from this fact, draw retrospective inferences respecting those extraordinary phenomena?

Independently of this, however, we know that during this earthquake, the duration of which is stated by some to have been a week, and by others, a fortnight, people experienced an unusual stupor and headache, and that many fainted away.*

These destructive earthquakes extended as far as the neighbourhood of Basle,† and recurred until the year 1360, throughout Germany, France, Silesia, Poland, England and Denmark, and much further north.‡

Great and extraordinary meteors appeared in many places, and were regarded with superstitious horror. A pillar of fire, which on the 20th of December, 1318, remained for an hour at sun rise over the pope's palace in Avignon;§ a fireball, which in August of the same year was seen at sunset over Paris, and was distinguished from similar phenomena, by its longer duration,|| (not to mention other instances mixed up with wonderful prophecies and omens,) are recorded in the chronicles of that age.

The order of the seasons seemed to be inverted,—rains, floods, and failures in crops were so general, that few places were exempt from them; and though an historian of this century assures us, that there was an abundance in the granaries and storehouses,¶ all his contemporaries, with one voice, contradict him. The consequences of failure in the crops were soon felt, especially in Italy and the surrounding countries, where, in this year, a rain which continued for four months, had destroyed the seed. In the larger cities, they were compelled, in the spring of 1347, to have recourse to a distribution of bread among the poor, particularly at Florence, where they erected large bake-houses, from which, in April, ninety-four thousand loaves of bread, each of twelve ounces in weight, were daily dispensed.** It is plain, however, that humanity could only partially mitigate the general distress, not altogether obviate it.

Diseases, the invariable consequence of famine, broke out in the

* *Albert Argentinensis*. *Chronie.* in *Urstis Scriptor. rer. Germanic.* Francof. 1585. fol. P. II. p. 147. Compare *Chalin*. *Loc. Cit.*

† *Petrach*. *Opera*. Basil 1554. fol. p. 210. *Burnes*. *Loc. cit.*

‡ “Un tremblement de terre universel, mesme en France et aux pays septentrionaux, renversoit les villes toutes entières, deracinoit les arbres et les montagnes, et remplissoit les campagnes d'abysmes si profondes, qu'il sembloit que l'enfer eût voulu engloutir le genre humain. *Mezeray Loc. cit.* p. 418. *Burnes* p. 431.

§ *Villani*. *Loc. cit.* c. 119. p. 1000.

|| *Guillelm de Nanges*, *Cont. alt. Chron.* *Loc. cit.* p. 109.

¶ *Ibid.* p. 110.

** *Villani Loc. cit.* c. 72. p. 954.

country, as well as in cities ; children died of hunger in their mothers' arms,—want, misery, and despair, were general throughout Christendom.*

Such are the events which took place before the eruption of the Black Plague in Europe. Contemporaries have explained them after their own manner, and have thus, like their posterity, under similar circumstances, given a proof, that mortals possess neither senses nor intellectual faculties sufficiently acute to comprehend the phenomena produced by the earth's organism, much less scientifically to understand their effects. Superstition, selfishness in a thousand forms, the presumption of the schools, laid hold of unconnected facts. They vainly thought to comprehend the whole in the individual, and perceived not the universal spirit which, in intimate union with the mighty powers of nature, animates the movements of all existence, and permits not any phenomenon to originate from isolated causes. To attempt, five centuries after that age of desolation, to point out the causes of a cosmical commotion, which has never recurred to an equal extent,—to indicate scientifically the influences which called forth so terrific a poison in the bodies of men and animals, exceeds the limits of human understanding. If we are even now unable, with all the varied resources of an extended knowledge of nature, to define that condition of the atmosphere by which pestilences are generated, still less can we pretend to reason retrospectively from the nineteenth to the fourteenth century ; but if we take a general view of the occurrences, that century will give us copious information, and, as applicable to all succeeding times, of high importance.

In the progress of connected natural phenomena, from East to West, that great law of nature is plainly revealed which has so often and evidently manifested itself in the earth's organism, as well as in the state of nations dependent upon it. In the inmost depths of the globe, that impulse was given in the year 1333, which in uninterrupted succession for six-and-twenty years shook the surface of the earth, even to the western shores of Europe. From the very beginning the air partook of the terrestrial concussion, atmospherical waters overflowed the land, or its plants and animals perished under the scorching heat. The insect tribe was wonderfully called into life, as if animated beings were destined to complete the destruction which astral and telluric powers had begun. Thus did this dreadful work of nature advance from year to year ; it was a progressive infection of the Zones which exerted a powerful influence both above and beneath the surface of the earth ; and after having been perceptible in slighter indications, at the commencement of the terrestrial commotions in China, convulsed the whole earth.

The nature of the first plague in China is unknown. We have no certain intelligence of the disease, until it entered the western coun-

* Anonym. *Istorie Pistolesi*, in *Muratori*, T. XI. p. 524. “Ne gli anni di Chr. 1346 et 1347, fu grandissima carestia in tutta la Christianità, in tanto, che molta gente moria di fame, e fu grande mortalità in ogni paese del mondo.

tries of Asia. Here it showed itself as the oriental plague with inflammation of the lungs; in which form it probably also may have begun in China, that is to say, as a malady which spreads, more than any other, by contagion—a contagion, that, in ordinary pestilences, requires immediate contact, and only under unfavourable circumstances of rare occurrence is communicated by the mere approach to the sick. The share which this cause had in the spreading of the plague over the whole earth, was certainly very great; and the opinion that the Black Death might have been excluded from Western Europe, by good regulations, similar to those which are now in use, would have all the support of modern experience; provided it could be proved that this plague had actually been imported from the East; or that the oriental plague in general, as often as it appears in Europe, always has its origin in Asia or Egypt. Such a proof, however, cannot be produced so as to enforce conviction; for it would involve the impossible assumption, that either there is no essential difference in the degree of civilization of the European nations, in the most ancient and in modern times, or that detrimental circumstances, which have yielded only to the civilization of human society and the regular cultivation of countries, could not formerly have maintained the bubo-plague.

The plague was, however, known in Europe before nations were united by the bonds of commerce and social intercourse;* hence there is ground for supposing that it sprung up spontaneously, in consequence of the rude manner of living and the uncultivated state of the earth; influences which peculiarly favour the origin of severe diseases. Now, we need not go back to the earlier centuries, for the 14th itself, before it was half expired, was visited by five or six pestilences.†

If, therefore, we consider the peculiar property of the plague, that, in countries which it has once visited, it remains for a long time in a milder form, and that the epidemic influences of 1342, when it had appeared for the last time, were particularly favourable to its unperceived continuance, till 1348, we come to the notion, that in this eventful year also, the germs of plague existed in Southern Europe, which might be vivified by atmospherical deteriorations; and that thus, at least in part, the Black Plague may have originated in Europe itself. The corruption of the atmosphere came from the East; but the disease itself came not upon the wings of the wind, but was only excited and increased by the atmosphere where it had previously existed.

* According to *Papon*, its origin is quite lost in the obscurity of remote ages; and even before the Christian Era, we are able to trace many references to former pestilences. *De la peste, ou époques mémorables de ce fleau, et les moyens de s'en préserver.* T. II. Paris, An. VIII de la rép. 8.

† 1301, in the South of France; 1311, in Italy; 1316, in Italy, Burgundy, and Northern Europe; 1335, the locust years, in the middle of Europe; 1340, in upper Italy; 1342, in France; and 1347, in Marseilles and most of the larger islands of the Mediterranean. *Ibid.* T. II. p. 273.

This source of the Black Plague was not, however, the only one ; for, far more powerful than the excitement of the latent elements of the plague by atmospheric influences, was the effect of the contagion communicated from one people to another, on the great roads, and in the harbours of the Mediterranean. From China, the route of the caravans lay to the north of the Caspian Sea, through Central Asia, to Tauris. Here ships were ready to take the produce of the East to Constantinople, the capital of commerce, and the medium of connexion between Asia, Europe, and Africa.* Other caravans went from India to Asia Minor, and touched at the cities south of the Caspian Sea, and lastly, from Bagdad, through Arabia to Egypt ; also, the maritime communication on the Red Sea, from India to Arabia and Egypt, was not inconsiderable. In all these directions contagion made its way ; and, doubtless, Constantinople, and the harbours of Asia Minor, are to be regarded as the foci of infection ; whence it radiated to the most distant seaports and islands.

To Constantinople, the plague had been brought from the northern coast of the Black Sea,† after it had depopulated the countries between those routes of commerce ; and appeared as early as 1347, in Cyprus, Sicily, Marseilles and some of the seaports of Italy. The remaining islands of the Mediterranean, particularly Sardinia, Corsica and Majorca, were visited in succession. Foci of contagion existed also in full activity along the whole southern coast of Europe ; when, in January 1348, the plague appeared in Avignon,‡ and in other cities in the south of France and north of Italy, as well as in Spain.

The precise days of its eruption in the individual towns, are no longer to be ascertained ; but it was not simultaneous : for in Florence, the disease appeared in the beginning of April ;§ in Cesena, the 1st of June ;|| and place after place was attacked throughout the whole year ; so that the plague, after it had passed through the whole of France and Germany, where, however, it did not make its ravages until the following year, did not break out till August, in England ; where it advanced so gradually, that a period of three months elapsed before it reached London.¶ The Northern Kingdoms were attacked by it in 1349. Sweden, indeed, not until November of that year : almost two years after its eruption in Avignon.** Poland received the plague in 1349, probably from Germany,†† if not from the northern countries ; but in Russia, it did not make its appearance until 1351, more than three years after it had broken out in Constantinople. Instead of advancing in a north-westerly direction from Tauris and from the

* Compare *Deguignes*, Loc. cit. p. 288.

† According to the general Byzantine designation, “ from the country of the hyperborean Scythians.” *Kantakuzen*. Loc. cit.

‡ *Guid. Cauliac*, Loc. cit.

§ *Matt. Villani*, *Istorie*, in *Muratori*, T. XIV. p. 14.

|| *Annal. Caesenat*, *Ibid.* p. 1179.

¶ *Barnes*. Loc. cit.

** *Olof Dalin's*, *Svea-Rikes Historie*, III. vol. *Stockholm*, 1747—61, 4. Vol. II. C. 12, p. 496.

†† *Dlugoss*, *Histor. Polon.* L. IX. p. 1086, T. I. *Lips.* 1711, fol.

Caspian Sea, it had thus made the great circuit of the Black Sea, by way of Constantinople, Southern and Central Europe, England, the Northern Kingdoms, and Poland, before it reached the Russian territories ; a phenomenon which has not again occurred with respect to more recent pestilences originating in Asia.

Whether any difference existed between the indigenous plague, excited by the influence of the atmosphere, and that which was imported by contagion, can no longer be ascertained from the facts ; for the cotemporaries, who in general were not competent to make accurate researches of this kind, have left no data on the subject. A milder and a more malignant form certainly existed, and the former was not always derived from the latter, as is to be supposed from this circumstance—that the spitting of blood, infallible diagnostic of the latter, on the first breaking out of the plague, is not similarly mentioned in all the reports ; and it is therefore probable, that the milder form belonged to the native plague,—the more malignant, to that introduced by contagion. Contagion was, however, in itself, only one of many causes which gave rise to the Black Plague.

This disease was a consequence of violent commotions in the earth's organism—if any disease of cosmical origin can be so considered. One spring set a thousand others in motion for the annihilation of living beings, transient or permanent, of mediate or immediate effect. The most powerful of all was contagion ; for in the most distant countries which scarcely yet heard the echo of the first concussion, the people fell a sacrifice to organic poison,—the untimely offspring of vital energies thrown into violent commotion.

CHAPTER IV.

MORTALITY.

WE have no certain measure by which to estimate the ravages of the Black Plague, if numerical statements were wanted, as in modern times. Let us go back for a moment to the 14th century. The people were yet but little civilized. The church had indeed subdued them ; but they all suffered from the ill-consequences of their original rudeness. The dominion of the law was not yet confirmed. Sovereigns had everywhere to combat powerful enemies to internal tranquillity and security. The cities were fortresses for their own defence. Marauders encamped on the roads.—The husbandman was a feudal slave, without possessions of his own.—Rudeness was general—Humanity, as yet unknown to the people.—Witches and heretics were burned alive.—Gentle rulers were contemned as weak ;—wild passions, severity and cruelty, everywhere predominated.—Human life was little regarded.—Governments concerned not themselves about the numbers of their subjects, for whose welfare it was incumbent on

them to provide. Thus, the first requisite for estimating the loss of human life, namely, a knowledge of the amount of the population, is altogether wanting; and, moreover, the traditional statements of the amount of this loss, are so vague, that from this source likewise, there is only room for probable conjecture.

Kairo lost daily, when the plague was raging with its greatest violence, from 10 to 15,000; being as many as, in modern times, great plagues have carried off during their whole course. In China, more than thirteen millions are said to have died; and this is in correspondence with the certainly exaggerated accounts from the rest of Asia. India was depopulated. Tartary, the Tartar Kingdom of Kaptshak, Mesopotamia, Syria, Armenia, were covered with dead bodies—the Kurds fled in vain to the mountains. In Caramania and Caesarea, none were left alive. On the roads,—in the camps,—in the caravansaries,—unburied bodies alone were seen; and a few cities only (Arabian historians name, Maara el nooman, Schisur and Harem) remained, in an unaccountable manner, free. In Aleppo, 500 died daily; 22,000 people, and most of the animals, were carried off in Gaza, within six weeks. Cyprus lost almost all its inhabitants;* and ships without crews were often seen in the Mediterranean; as afterwards in the North Sea, driving about, and spreading the plague wherever they went on shore.† It was reported to Pope Clement, at Avignon, that throughout the East, probably with the exception of China, 23,840,000 people had fallen victims to the plague.‡ Considering the occurrences of the 14th and 15th centuries, we might, on first view, suspect the accuracy of this statement. How (it might be asked) could such great wars have been carried on—such powerful efforts have been made; how could the Greek empire, only a hundred years later, have been overthrown, if the people really had been so utterly destroyed?

This account is nevertheless rendered credible by the ascertained fact, that the palaces of princes are less accessible to contagious diseases, than the dwellings of the multitude; and that in places of importance, the influx from those districts which have suffered least, soon repairs even the heaviest losses. We must remember also, that we do not gather much from mere numbers without an intimate knowledge of the state of society. We will, therefore, confine ourselves to exhibiting some of the more credible accounts relative to European cities.

In Florence there died of the Black Plague	60,000§
In Venice - - - - -	100,000

* *Deguignes*, Loc. cit. p. 223, f.

† *Matt. Villani*, *Istoria*, Loc. cit. p. 13.

‡ *Knighton*, in *Barnes*, Loc. cit. p. 434.

§ *Jno. Trithem Annal. Hirsaugiens.* Monast. St. Gall. Hirsaug. 1690. fol. 1. T. II p. 296. According to *Boccacio*, Loc. cit. 100,000; according to *Matt. Villani*, Loc. cit. p. 14. three out of five.

|| *Odoric Raynald Annal. ecclesiastic.* Colon. Agripp. 1691. fol. Vol. XVI. p. 280.

In Marseilles, in one month	-	-	-	16,000*
In Siena	-	-	-	70,000†
In Paris	-	-	-	50,000‡
In St. Denys	-	-	-	14,000§
In Avignon	-	-	-	60,000
In Strasburg	-	-	-	16,000¶
In Lübeck	-	-	-	9,000**
In Basle	-	-	-	14,000
In Erfurt, at least	-	-	-	16,000
In Weimar	-	-	-	5,000††
In Limburg	-	-	-	2,500‡‡
In London, at least	-	-	-	100,000§§
In Norwich	-	-	-	51,100

To which may be added—

Franciscan Friars in Germany	-	-	124,434¶¶
Minorites in Italy	-	-	30,000***

This short catalogue might, by a laborious and uncertain calculation, deduced from other sources, be easily further multiplied, but would still fail to give a true picture of the depopulation which took place. Lübeck, at that time the Venice of the North, which could no longer contain the multitudes that flocked to it, was thrown into such consternation on the eruption of the plague, that the citizens destroyed themselves as if in frenzy.

* *Vitoduran* Chronic. in *Füssli*. Loc. cit.

† *Tromby*, Storia de S. Brunone e dell' ordine Cartusiano. Vol. VI. L. VIII. p. 253. Napol. 1777. fol.

‡ *Barnes*, p. 435.

§ Ditto.

|| *Baluz*, Vitae Papar. Avenionens. Paris 1693-4. Vol. I. p. 316. According to *Rebberf* in *Freher*. Loc. cit. at the worst period, 500 daily.

¶ *Königshoven*. Loc. cit.

** According to *Reiner Kork*, from Easter to Michaelmas 1350, 80 to 90,000; among whom were eleven members of the senate, and bishop John IV. Vid. *John Rud. Becker*, Circumstantial History of the Imper. and free city of Lübeck. Lübeck: 1782, 84, 1805. 3 Vols. 4. Vol. I. p. 269. 71. Although Lübeck was then in its most flourishing state, yet this account, which agrees with that of *Paul Lange*, is certainly exaggerated. (Chronic. Citizense, in *I. Pistorius* Rerum Germanic. Scriptores aliquot insignes, cur. *Struve* Ratisb. 1626. fol. p. 1214.) We have, therefore, chosen the lower estimate of an anonym. writer. Chronic. Sclavic. by *Erpold Lindenbrog*, Scriptores rerum Germanic. Septentrional. vicinorumque populor. diversi, Francof. 1630. fol. p. 225, and *Spangenberg*. Loc. cit. with whom again the assurance of the two authors, that on the 10th August, 1350, 15 or 1700, (according to *Becker* 2500) persons had died, does not coincide. See Chronik des Franciskaner Lesemeisters *Detmar*, nach der Urschrift und mit Ergänzungen aus anderen Chroniken, published by I. H. Grautoff. Hamburg: 1829.-30. 8. P. I. p. 269. App. 471.

†† *Förstemann*, Versuch einer Geschichte der christlichen Geisslergesellschaften, in *Staudlins* und *Izschirner's*, Archiv für alte und neue Kirchengeschichte, Vol. III. 1817.

‡‡ Limburg Chronicle. bup. by *C. D. Vogel*. Margurg: 1828. 8vo. p. 14.

§§ *Barnes*. Loc. cit.

||| Ibid.

¶¶ *Spangenberg*. fol. 339. A. Grawsam Sterben vieler faulen Tropfen. Many lazy monks died a cruel death.

*** *Vitoduran*. Loc. cit.

Merchants whose earnings and possessions were unbounded, coldly and willingly renounced their earthly goods. They carried their treasures to monasteries and churches and laid them at the foot of the altar; but gold had no charms for the monks, for it brought them death. They shut their gates; yet, still it was cast to them over the convent walls. People would brook no impediment to the last pious work to which they were driven by despair. When the plague ceased, men thought they were still wandering among the dead, so appalling was the livid aspect of the survivors, in consequence of the anxiety they had undergone, and the unavoidable infection of the air.* Many other cities probably presented a similar appearance; and it is ascertained that a great number of small country towns and villages which have been estimated, and not too highly, at 200,000,† were bereft of all their inhabitants.

In many places in France not more than two out of twenty of the inhabitants were left alive,‡ and the capital felt the fury of the plague, alike in the palace and the cot.

Two queens,§ one bishop,|| and great numbers of other distinguished persons, fell a sacrifice to it, and more than 500 a day died in the Hôtel-Dieu, under the faithful care of the sisters of charity, whose disinterested courage, in this age of horror, displayed the most beautiful traits of human virtue. For although they lost their lives evidently from contagion, and their numbers were several times renewed, there was still no want of fresh candidates, who, strangers to the unchristian fear of death, piously devoted themselves to their holy calling.

The church-yards were soon unable to contain the dead,¶ and many houses, left without inhabitants fell to ruins.

In Avignon, the pope found it necessary to consecrate the Rhone, that bodies might be thrown into the river without delay, as the church-yards would no longer hold them; ** so likewise, in all populous cities, extraordinary measures were adopted, in order speedily to dispose of the dead. In Vienna, where for some time 1200 inhabitants died daily,†† the interment of corpses in the church-yards and within the churches, was forthwith prohibited; and the dead were then arranged in layers, by thousands, in six large pits outside the city,‡‡ as had already been done in Cairo and Paris. Yet, still many

* *Becker*, Loc. cit. † *Huinr. Rebendorf*, P. 630. ‡ *Guillelm de Nang.* Loc. cit.

§ *Johanna*, queen of Navarre, daughter of *Louis X.*, and *Jahanna* of Burgundy, wife of king *Philip de Valois*.

|| *Fulco de Chanar*.

¶ *Mich. Felibien*, *Histoire de la ville de Paris*. Liv. XII. Vol. II. p. 601, Paris: 1725. fol. Comp. *Guillelm de Nangis*. Loc. cit. and *Daniel Histoire de France*, Tom. II. p. 484. Amsterd. 1720. 4to.

** *Torſueus*, Loc. cit.

†† According to another account, 960. *Chronic. Salisburg*, in *Pez*. Loc. cit. T. I. p. 412.

‡‡ According to an anonymous Chronicler, each of these pits is said to have contained 40,000; this, however, we are to understand as only in round numbers. Anonym. *Leobiens*, in *Pez*. p. 970. According to this writer, above seventy persons died in some houses, and many were entirely deserted, and at St. Stephen's alone, fifty-four ecclesiastics were cut off.

were secretly buried; for at all times, the people are attached to the consecrated cemeteries of their dead, and will not renounce the customary mode of interment.

In many places, it was rumored that plague patients were buried alive,* as may sometimes happen through senseless alarm and indecent haste; and thus the horror of the distressed people was every where increased. In Erfurt, after the church-yards were filled, 12,000 corpses were thrown into eleven great pits; and the like might, more or less exactly, be stated with respect to all the larger cities.† Funeral ceremonies, the last consolation of the survivors, were every where impracticable.

In all Germany, according to a probable calculation, there seem to have died only 1,244,434‡ inhabitants; this country, however, was more spared than others: Italy, on the contrary, was most severely visited. It is said to have lost half its inhabitants;§ and this account is rendered credible from the immense losses of individual cities and provinces: for in Sardinia and Corsica, according to the account of the distinguished Florentine, John Villani, who was himself carried off by the Black Plague,|| scarcely a third part of the population remained alive; and it is related of the Venetians, that they engaged ships at a high rate to retreat to the islands; so that after the plague had carried off three fourths of her inhabitants, that proud city was left forlorn and desolate.¶ In Padua, after the cessation of the plague, two thirds of the inhabitants were wanting; and in Florence it was prohibited to publish the numbers of the dead, and to toll the bells at their funerals, in order that the living might not abandon themselves to despair.**

We have more exact accounts of England; most of the great cities suffered incredible losses; above all, Yarmouth, in which, 7052 died: Bristol, Oxford, Norwich, Leicester, York, and London where, in one burial ground alone, there were interred upwards of 50,000 corpses, arranged in layers, in large pits.†† It is said, that in the whole country, scarcely a tenth part remained alive;‡‡ but this estimate is evidently too high. Smaller losses were sufficient to cause those convulsions, whose consequences were felt for some centuries, in a false impulse given to civil life, and whose indirect influence, unknown to the English, has, perhaps, extended even to modern times.

Morals were deteriorated every where, and the service of God was, in a great measure, laid aside; for in many places, the churches

* *Auger. de Biterris in Muratori. Vol. III. P. II. p. 556. In Gobelin Person, the same is said of Paderborn, in Henr. Meibom. Rer. Germanic. Script. T. I. p. 286. Helmstadt: 1688. fol.*

† *Spangenberg. Loc. cit. chap. 287, fol. 336-7*

‡ *Barnes, 435.*

§ *Trithem. Annel. Hirsaug. Loc. cit.*

|| *Loc. cit. L. XII. c. 99. p. 977*

¶ *Chronic. Clauastro-Neuburg. in Pez. Vol. I. p. 490. Comp. Barnes, p. 435.*

Raynald Histor. ecclesiastic Loc. cit. According to this, a runaway Venetian is said to have brought the plague to Padua.

** *Gioc. Villani, L. XII. c. 83, p. 964.*

†† *Barnes, p. 436.*

‡‡ *Wood, Loc. cit.*

were deserted, being bereft of their priests. The instruction of the people was impeded,* covetousness became general; and when tranquillity was restored, the great increase of lawyers was astonishing, to whom the endless disputes regarding inheritances, offered a rich harvest. The want of priests too, throughout the country, operated very detrimentally upon the people (the lower classes being most exposed to the ravages of the plague, whilst the houses of the nobility were, in proportion, much more spared) and it was no compensation that whole bands of ignorant laymen, who had lost their wives during the pestilence, crowded into the monastic orders, that they might participate in the respectability of the priesthood, and in the rich heritages which fell in to the churches from all quarters. The sittings of Parliament, of the King's Bench, and of most of the other courts, were suspended as long as the malady raged. The laws of peace availed not during the dominion of death. Pope Clement took advantage of this state of disorder, to adjust the bloody quarrel between Edward III. and Philip VI.; yet he only succeeded during the period that the plague commanded peace. Philip's death (1350) annulled all treaties; and it is related, that Edward, with other troops indeed, but with the same leaders and knights, again took the field. Ireland was much less heavily visited than England. The disease seems to have scarcely reached the mountainous districts of that kingdom; and Scotland too would, perhaps, have remained free, had not the Scots availed themselves of the discomfiture of the English, to make an irruption into their territory, which terminated in the destruction of their army, by the plague and by the sword, and the extension of the pestilence, through those who escaped, over the whole country.

At the commencement, there was in England a superabundance of all the necessities of life; but the plague, which seemed then to be the sole disease, was soon accompanied by a fatal murrain among cattle. Wandering about without herdsmen, they fell by thousands; and, as has likewise been observed in Africa, the birds and beasts of prey are said not to have touched them. Of what nature this murrain may have been, can no more be determined, than whether it originated from communication with plague patients, or from other causes; but thus much is certain, that it did not break out until after the commencement of the Black Death. In consequence of this murrain, and the impossibility of removing the corn from the fields, there was every where a great rise in the price of food, which to many was inexplicable, because the harvest had been plentiful; by others it was attributed to the wicked designs of the labourers and dealers; but it had its foundation in the actual deficiency, arising from circumstances by which individual classes at all times endea-

* *Wood* says, that before the plague, there were 13,000 students at Oxford; a number, which may, in some degree, enable us to form an estimate of the state of education in England at that time, if we consider that the universities were, in the middle ages, frequented by younger students, who in modern times do not quit school till their 18th year.

year to profit. For a whole year, until it terminated in August, 1349, the Black Plague prevailed in this beautiful island, and every where poisoned the springs of comfort and prosperity.*

In other countries, it generally lasted only half a year, but returned frequently in individual places; on which account, some, without sufficient proof, assigned to it a period of seven years.†

Spain was uninterruptedly ravaged by the Black Plague till after the year 1350, to which the frequent internal feuds and the wars with the Moors not a little contributed. Alphonso XI., whose passion for war carried him too far, died of it at the siege of Gibraltar, on the 26th of March, 1350. He was the only king in Europe who fell a sacrifice to it; but even before this period, innumerable families had been thrown into affliction.‡ The mortality seems otherwise to have been smaller in Spain than in Italy, and about as considerable as in France.

The whole period during which the Black Plague raged with destructive violence in Europe, was, with the exception of Russia, from the year 1347 to 1350. The plagues, which in the sequel often returned until the year 1383,§ we do not consider as belonging to "the Great mortality." They were rather common pestilences, without inflammation of the lungs, such as in former times, and in the following centuries, were excited by the matter of contagion everywhere existing, and which, on every favourable occasion, gained ground anew, as is usually the case with this frightful disease.

The concourse of large bodies of people was especially dangerous; and thus, the premature celebration of the Jubilee, to which Clement VI. cited the faithful to Rome, (1350), during the great epidemic, caused a new eruption of the plague, from which it is said, that scarcely one in a hundred of the pilgrims escaped.||

Italy was, in consequence, depopulated anew; and those who returned, spread poison and corruption of morals in all directions.¶ It is, therefore, the less apparent, how that Pope, who was in general so wise and considerate, and who knew how to pursue the path of reason and humanity, under the most difficult circumstances, should have been led to adopt a measure so injurious; since he, himself, was so convinced of the salutary effect of seclusion, that during the plague in Avignon, he kept up constant fires, and suffered no one to approach him; ** and, in other respects, gave such orders as averted, or alleviated, much misery.

* Barnes and Wood. Loc. cit. † Gobelín Person. in Meibom. Loc. cit.

‡ Juan de Mariana. Historia General de Espana. Illustrated by Don José Sabau y Blanco. Tom. IX. Madrid: 1819, 8vo. Libro XVI. p. 225. Don Diego Ortiz de Zuniga, Annales ecclesiasticos y seculares de Sevilla. Madrid: 1795, 4to. T. II. p. 121. Don Juan de Ferreras, Historia de Espana. Madrid: 1721. T. VII. p. 353.

§ Gobelín Person. Loc. cit. V. Chalin, p. 53.

|| Guillelm de Nangis. Loc. cit.

¶ Spangenberg, fol. 337. b. Limburg. Chronic. p. 20. "Und die auch von Rom kamen, wurden eines Theils böser als sie vor gewesen waren."

** Guillelm de Nangis. Loc. cit. and many others.

The changes which occurred about this period in the north of Europe, are sufficiently memorable to claim a few moments' attention. In Sweden, two princes died—Häken and Knut, half-brothers of King Magnus; and in Westgothland alone, 466 priests.* The inhabitants of Iceland and Greenland, found in the coldness of their inhospitable climate, no protection against the southern enemy who had penetrated to them from happier countries. The plague caused great havoc among them. Nature made no allowance for their constant warfare with the elements, and the parsimony with which she had meted out to them the enjoyments of life† In Denmark and Norway, however, people were so occupied with their own misery, that the accustomed voyages to Greenland ceased. Towering icebergs formed at the same time on the coast of East Greenland, in consequence of the general concussion of the earth's organism; and no mortal, from that time forward, has ever seen that shore or its inhabitants.‡

It has been observed above, that in Russia, the Black Plague did not break out until 1351, after it had already passed through the south and north of Europe. In this country also, the mortality was extraordinarily great; and the same scenes of affliction and despair, were exhibited, as had occurred in those nations which had already passed the ordeal. The same mode of burial—the same horrible certainty of death—the same torpor and depression of spirits. The wealthy abandoned their treasures, and gave their villages and estates to the churches and monasteries; this being, according to the notions of the age, the surest way of securing the favour of Heaven and the forgiveness of past sins. In Russia too, the voice of nature was silenced by fear and horror. In the hour of danger, fathers and mothers deserted their children, and children their parents.§

Of all the estimates of the number of lives lost in Europe, the most probable is, that altogether, a fourth part of the inhabitants were carried off. Now, if Europe at present contain 210,000,000 inhabitants, the population, not to take a higher estimate, which might easily be justified, amounted to at least 105,000,000, in the 16th century.

It may, therefore, be assumed, without exaggeration, that Europe lost during the Black Death, 25,000,000 of inhabitants.

That her nations could so quickly overcome such a fearful concussion in their external circumstances, and, in general, without retrograding more than they actually did, could so develope their energies in the following century, is a most convincing proof of the indestructibility of human society as a whole. To assume, however,

* *Dallin's Svea Rikes Historie*, Vol. II. c. xii. p. 496.

† *Saabye*. Tagebuch in Grönland. Einleit. XVIII.—*Torfæi Histor. Norveg.* Tom. IV. L. IX, c. viii. p. 478-79. *F. G. Munsa*, De epidemiis maxime memorabilibus quæ in Dania Grassatæ sunt, et de Medicinæ statu. Partic. I. Havn. 1831, 8vo. p. 12.

‡ *Torfæi Groenlandia antiqua*, s. veteris Groenlandiæ descriptio. Havniæ, 1715, 8vo. p. 23—*Potan.* Rer. danicar. Histor. Amstelod. 1631, fol. L. VII. p. 476.

§ *Richter*, Loc. cit.

that it did not suffer any essential change internally, because in appearance every thing remained as before, is inconsistent with a just view of cause and effect. Many historians seem to have adopted such an opinion ; accustomed, as usual, to judge of the moral condition of the people solely according to the vicissitudes of earthly power, the events of battles, and the influence of religion, but to pass over with indifference, the great phenomena of nature, which modify, not only the surface of the earth, but also the human mind. Hence, most of them have touched but superficially on the "great mortality" of the 14th century. We, for our parts are convinced, that in the history of the world, the Black Death is one of the most important events which have prepared the way for the present state of Europe.

He who studies the human mind with attention, and forms a deliberate judgment on the intellectual powers which set people and states in motion, may, perhaps, find some proofs of this assertion in the following observations :—at that time, the advancement of the hierarchy was, in most countries, extraordinary ; for the church acquired treasures and large properties in land, even to a greater extent than after the crusades ; but experience has demonstrated, that such a state of things is ruinous to the people, and causes them to retrograde, as was evinced on this occasion.

After the cessation of the Black Plague, a greater fertility in women was everywhere remarkable—a grand phenomenon, which, from its occurrence after every destructive pestilence, proves to conviction, if any occurrence can do so, the prevalence of a higher power in the direction of general organic life. Marriages were, almost without exception, prolific ; and double and treble births were more frequent than at other times ; under which head, we should remember the strange remark, that after the "great mortality" the children were said to have got fewer teeth than before ; at which, contemporaries were mightily shocked, and even later writers have felt surprise.

If we examine the grounds of this oft-repeated assertion, we shall find that they were astonished, to see children cut twenty, or at most, twenty-two teeth, under the supposition that a greater number had formerly fallen to their share.* Some writers of authority, as, for example, the physician Savonarola,† at Ferrara, who probably looked for twenty-eight teeth in children, published their opinions on this subject. Others copied from them, without seeing for themselves, as often happens in other matters which are equally evident ; and thus the world believed in the miracle of an imperfection in the human body which had been caused by the Black Plague.

The people gradually consoled themselves after the sufferings which they had undergone ; the dead were lamented and forgotten ; and in

* We may take this view of the subject from *Guillelm de Nangis* and *Barnes*, if we read them *with attention*. *Olof Dalin*, *Loc. cit.*

† *Practica de aegritudinibus a capite usque ad pedes*. *Papiae*. 1486, fol. Tract, VI. c. vii.

the stirring vicissitudes of existence, the world belonged to the living.*

CHAPTER V.

MORAL EFFECTS.

THE mental shock sustained by all nations during the prevalence of the Black Plague, is without parallel and beyond description. In the eyes of the timorous, danger was the certain harbinger of death; many fell victims to fear, on the first appearance of the distemper, and the most stout hearted lost their confidence. Thus, after reliance on the future had died away, the spiritual union which binds man to his family and his fellow-creatures, was gradually dissolved. The pious closed their accounts with the world,—eternity presented itself to their view,—their only remaining desire, was for a participation in the consolations of religion, because to them death was disarmed of its sting.

Repentance seized the transgressor, admonishing him to consecrate his remaining hours to the exercise of Christian virtues. All minds were directed to the contemplation of futurity; and children, who manifest the more elevated feelings of the soul without alloy, were frequently seen, while labouring under the plague, breathing out their spirit with prayer and songs of thanksgiving.†

An awful sense of contrition seized Christians of every communion; they resolved to forsake their vices—to make restitution for past offences, before they were summoned hence—to seek reconciliation with their Maker, and to avert, by self-chastisement, the punishment due to their former sins. Human nature would be exalted, could the countless noble actions, which, in times of most

* “Darnach, da das Sterben, die Geiselfarth, Römerfarth, Judenschlacht, als vorgeschrieben steht, ein End hatte, da hub die Welt wieder an zu leben und fröhlich zu seyn, und machten die Männer neue Kleidung.” Limburg Chronik. p. 26. After this when, as was stated before, the mortality, the processions of the Flagellants, the expeditions to Rome, and the massacre of the Jews, were at an end, the world began to revive and be joyful, and the people put on new clothing.

† *Chalin*, Loc. cit. p. 92. *Detmar's Lübeck Chronicle*, T. I. p. 401.

‡ *Chronik. Ditmar*, Episcop, Merseburg, Francof. 1580, fol. p. 358.—“*Spangenberg*, p. 338. The lamentation was pitiful; and the only remaining solace, was the prevalent anxiety, inspired by the danger, to prepare for a glorious departure; no other hope remained—death appeared inevitable. Many were hence induced to search into their own hearts, to turn to God, and to abandon their wicked courses: parents warned their children, and instructed them how to pray, and to submit to the ways of Providence: neighbours mutually admonished each other; none could reckon on a single hour's respite. Many persons, and even young children, were seen bidding farewell to the world; some with prayers, others with praises on their lips.”

imminent danger, were performed in secret, be recorded for the instruction of future generations. They, however, have no influence on the course of worldly events. They are known only to silent eye-witnesses, and soon fall into oblivion. But hypocrisy, illusion, and bigotry, stalk abroad undaunted; they desecrate what is noble—they pervert what is divine, to the unholy purposes of selfishness; which hurries along every good feeling in the false excitement of the age. Thus it was in the years of this plague. In the 14th century, the monastic system was still in its full vigour,—the power of the ecclesiastical orders and brotherhoods, was revered by the people, and the hierarchy was still formidable to the temporal power. It was, therefore, in the natural constitution of society that bigotted zeal, which in such times makes a show of public acts of penance, should avail itself of the semblance of religion. But this took place in such a manner, that unbridled, self-willed penitence, degenerated into luke-warmness, renounced obedience to the hierarchy, and prepared a fearful opposition to the church, paralysed by antiquated forms.

While all countries were filled with lamentations and wo, there first arose in Hungary,* and afterwards in Germany, the Brotherhood of the Flagellants, called also the Brethren of the Cross, or Cross-bearers, who took upon themselves the repentance of the people, for the sins they had committed, and offered prayers and supplications for the averting of this plague. This Order consisted chiefly of persons of the lower class, who were either actuated by sincere contrition, or, who joyfully availed themselves of this pretext for idleness, and were hurried along with the tide of distracting frenzy. But, as these brotherhoods gained in repute, and were welcomed by the people with veneration and enthusiasm, many nobles and ecclesiastics ranged themselves under their standard; and their bands were not unfrequently augmented by children, honourable women and nuns; so powerfully were minds of the most opposite temperaments enslaved by this infatuation.† They marched through the cities, in well-organized processions, with leaders and singers; their heads covered as far as the eyes; their look fixed on the ground, accompanied by every token of the deepest contrition and mourning. They were robed in sombre garments, with red crosses on the breast, back, and cap, and bore triple scourges, tied in three or four knots, in

* *Torfaei Hist. rer. Norvegic.* L. IX. c. viii. p. 478. (Havn. 1711, fol.) *Die Cronica, van der hilliger stat van Coellen, off dat tzytboich*, Coellen, 1499, fol. p. 263. “*In dem wurss jasi erhoiff sich eyn also wunderlich nuwe Gesellschaft in Ungurien*,” &c. The Chronicle of the holy city of Cologne, 1499. In this same year, a very remarkable Society was formed in Hungary.

† *Albert. Argentinens. Chronic.* p. 149, in *Chr. Urstisius. Germaniae historicorum illustrium Tomus unus.* Francof. 1585, fol.—*Guillelm de Nang.* Loc. cit. See also the Saxon Chronicle, by *Mattheus Dresseren*, Physician and Professor at Leipzig, Wittenberg, 1596, fol. p. 340; the above-named Limburg Chronicle, and the Germaniae Chronicon, on the origin, name, commerce, &c. of all the Teutonic Nations of Germany: by *Seb. Franchen*, of Wörd. Tubingen, 1534, fol. p. 201.

which points of iron were fixed. Tapers and magnificent banners of velvet and cloth of gold, were carried before them ; wherever they made their appearance, they were welcomed by the ringing of the bells ; and the people flocked from all quarters, to listen to their hymns and to witness their penance, with devotion and tears. In the year 1349, two hundred Flagellants first entered Strasburg, where they were received with great joy, and hospitably lodged by the citizens. Above a thousand joined the brotherhood, which now assumed the appearance of a wandering tribe, and separated into two bodies, for the purpose of journeying to the north and to the south. For more than half a year, new parties arrived weekly ; and, on each arrival, adults and children left their families to accompany them ; till, at length, their sanctity was questioned, and the doors of houses and churches were closed against them.* At Spire, two hundred boys, of twelve years of age and under, constituted themselves into a Brotherhood of the Cross, in imitation of the children, who, about a hundred years before, had united, at the instigation of some fanatic monks, for the purpose of recovering the Holy Sepulchre. All the inhabitants of this town, were carried away by the illusion ; they conducted the strangers to their houses with songs of thanksgiving, to regale them for the night. The women embroidered banners for them, and all were anxious to augment their pomp ; and at every succeeding pilgrimage, their influence and reputation increased.† It was not merely some individual parts of the country that fostered them : all Germany, Hungary, Poland, Bohemia, Silesia, and Flanders, did homage to the mania ; and they at length became as formidable to the secular, as they were to the ecclesiastical power. The influence of this fanaticism, was great and threatening ; resembling the excitement which called all the inhabitants of Europe into the deserts of Syria and Palestine, about two hundred and fifty years before. The appearance, in itself, was not novel. As far back as the 11th century, many believers, in Asia and Southern Europe, afflicted themselves with the punishment of flagellation. Dominicus Loricatus, a monk of St. Croce d'Avellano, is mentioned as the master and model of this species of mortification of the flesh ; which, according to the primitive notions of the Asiatic Anchorites, was deemed eminently Christian. The author of the solemn processions of the Flagellants, is said to have been St. Anthony ; for even in his time (1231), this kind of penance was so much in vogue, that it is recorded as an eventful circumstance in the history of the world. In 1260, the Flagellants appeared in Italy as *Devoti*. "When the land was polluted by vices and crimes,‡ an unexampled spirit of remorse suddenly seized the minds of the Italians. The fear of Christ fell upon all : noble and ignoble, old and young, and even

* *Königshoven*, Elsassische und Strassburgische Chronike. Loc. cit. p. 297.

† *Albertus Agentin*. Loc. cit. They never remained longer than one night at any place.

‡ Words of *Monachus Paduanus*, quoted in Förstemann's Treatise, which is the best upon this subject.—See p. 60.

children of five years of age, marched through the streets with no covering but a scarf round the waist. They each carried a scourge of leathern thongs, which they applied to their limbs, amid sighs and tears, with such violence, that the blood flowed from the wounds. Not only during the day, but even by night, and in the severest winter, they traversed the cities with burning torches and banners, in thousands and tens of thousands, headed by their priests, and prostrated themselves before the altars. They proceeded in the same manner in the villages; and the woods and mountains resounded with the voices of those whose cries were raised to God. The melancholy chaunt of the penitent alone, was heard. Enemies were reconciled; men and women vied with each other in splendid works of charity, as if they dreaded, that Divine Omnipotence would pronounce on them the doom of annihilation.*

The pilgrimages of the Flagellants extended throughout all the provinces of Southern Germany, as far as Saxony, Bohemia, and Poland, and even further; but, at length, the priests resisted this dangerous fanaticism, without being able to extirpate the illusion, which was advantageous to the hierarchy, as long as it submitted to its sway. Regnier, a hermit of Perugia, is recorded as a fanatic preacher of penitence, with whom the extravagance originated.* In the year 1296, there was a great procession of the Flagellants in Strasburg;† and in 1334, fourteen years before the great mortality, the sermon of Venturinus, a Dominican friar, of Bergamo, induced above 10,000 persons to undertake a new pilgrimage. They scourged themselves in the churches, and were entertained in the market-places, at the public expense. At Rome, Venturinus was derided, and banished by the Pope to the mountains of Ricondona. He patiently endured all—went to the Holy Land, and died at Smyrna, 1346‡. Hence we see that this fanaticism was a mania of the middle ages, which, in the year 1349, on so fearful an occasion, and while still so fresh in remembrance, needed no new founder; of whom, indeed, all the records are silent. It probably arose in many places at the same time; for the terror of death, which pervaded all nations and suddenly set such powerful impulses in motion, might easily conjure up the fanaticism of exaggerated and overpowering repentance.

The manner and proceedings of the Flagellants of the 13th and 14th centuries exactly resemble each other. But, if during the Black Plague, simple credulity came to their aid, which seized, as a

* Schnurrer, Chronique de the Plagues, T. I. p. 291.

† Königshoven. Loc. cit.

‡ Förstmann, Loc. cit. The pilgrimages of the Flagellants of the year 1349 were not the last. Later in the 14th century, this fanaticism still manifested itself several times, though never to so great an extent: in the 15th century, it was deemed necessary, in several parts of Germany, to extirpate them by fire and sword;—and in the year 1710, processions of the Cross-bearers were still seen in Italy. How deep this mania had taken root, is proved by the deposition of a citizen of Nordhausen (1446): that his wife, in the belief of performing a Christian act, wanted to scourge her children as soon as they were baptized.

consolation, the grossest delusion of religious enthusiasm, yet it is evident that the leaders must have been intimately united, and have exercised the power of a secret association. Besides, the rude band was generally under the control of men of learning, some of whom, at least, certainly had other objects in view, independent of those which ostensibly appeared. Whoever was desirous of joining the brotherhood, was bound to remain in it thirty-four days, and to have four-pence per day at his own disposal, so that he might not be burthensome to any one ; if married, he was obliged to have the sanction of his wife, and give the assurance that he was reconciled to all men. The Brothers of the Cross were not permitted to seek for free quarters, or even to enter a house without having been invited ; they were forbidden to converse with females ; and if they transgressed these rules, or acted without precaution, they were obliged to confess to the Superior, who sentenced them to several lashes of the scourge, by way of penance. Ecclesiastics had not, as such, any pre-eminence among them ; according to their original law, which, however, was often transgressed, they could not become Masters, or take part in the *Secret Councils*. Penance was performed twice every day : in the morning and evening they went abroad, in pairs, singing psalms, amid the ringing of the bells ; and when they arrived at the place of flagellation, they stripped the upper part of their bodies and put off their shoes, keeping on only a linen dress, reaching from the waist to the ancles. They then lay down in a large circle, in different positions, according to the nature of their crime : the adulterer with his face to the ground ; the perjurer on one side, holding up three of his fingers, &c., and were then castigated, some more and some less, by the Master, who ordered them to rise in the words of a prescribed form.* Upon this, they scourged themselves, amid the singing of psalms and loud supplications for the averting of the plague, with genuflexions, and other ceremonies, of which cotemporary writers give various accounts ; and at the same time constantly boasted of their penance, that the blood of their wounds was mingled with that of the Saviour.† One of them, in conclusion, stood up to read a letter, which it was pretended an angel had brought from heaven, to St. Peter's church, at Jerusalem, stating that Christ, who was sore displeased at the sins of man, had granted, at the intercession of the Holy Virgin and of the angels, that all who should wander about for thirty-four days, and scourge themselves, should be partakers of the Divine grace.‡ This scene caused as great a commotion among the believers as the finding of the holy spear once did at Antioch ; and if any among the clergy enquired who had sealed the letter ? he was boldly answered, the same who had sealed the Gospel !

All this had so powerful an effect, that the church was in considerable danger ; for the Flagellants gained more credit than the priests,

* *Königshoven*, p. 298 :

“*Stant uf durch der reinen Martel ere ;
Und hüte dich vor der Sünden mere.*”

† *Guill. de Nang.* Loc. cit.

‡ *Albert Argentinens.* Loc. cit.

from whom they so entirely withdrew themselves, that they even absolved each other. Besides, they every where took possession of the churches, and their new songs, which went from mouth to mouth, operated strongly on the minds of the people. Great enthusiasm, and originally pious feelings, are clearly distinguishable in these hymns, and especially in the chief psalm of the Cross-bearers, which is still extant, and which was sung all over Germany, in different dialects, and is probably of a more ancient date.* Degeneracy, however, soon crept in; crimes were everywhere committed; and there was no energetic man capable of directing the individual excitement to purer objects, even had an effectual resistance to the tottering church been at that early period seasonable, and had it been possible to restrain the fanaticism. The Flagellants sometimes undertook to make trial of their power of working miracles; as in Strasburg, where they attempted, in their own circle, to resuscitate a dead child; they, however, failed, and their unskilfulness did them much harm, though they succeeded here and there in maintaining some confidence in their holy calling, by pretending to have the power of casting out evil spirits.†

The Brotherhood of the Cross announced that the pilgrimage of the Flagellants was to continue for a space of thirty-four years; and many of the Masters had, doubtless, determined to form a lasting league against the church; but they had gone too far. Already, in the same year, the general indignation set bounds to their intrigues; so that the strict measures adopted by the Emperor Charles IV. and Pope Clement,‡ who, throughout the whole of this fearful period, manifested prudence and noble-mindedness, and conducted himself in a manner every way worthy of his high station, were easily put into execution.§

The Sorbonne, at Paris, and the Emperor Charles, had already applied to the Holy See, for assistance against these formidable and heretical excesses, which had well nigh destroyed the influence of the clergy in every place; when a hundred of the Brotherhood

* We meet with fragments of different lengths in the Chronicles of the times, but the only entire MS. which we possess is in the valuable Library of President von Meusebach. Massmann has had this printed, accompanied by a translation, entitled *Erläuterungen zum Wessobrunner Gebet des 8ten Jahrhunderts. Nebst ZWEIEN noch ungedruckten GEDICHTEN DES VIERZEHNTEH JAHRHUNDERTS*, Berlin, 1824. "Elucidation of the Wessobrunn Prayer of the 8th century, together with two unpublished Hymns of the 14th century." We shall subjoin it at the end of the Treatise, as a striking document of the age. The Limburg Chronicle asserts, indeed, that it was not composed till that time, although a part, if not the whole of it, was sung in the procession of the Flagellants, in 1260.—See, *Incerti auctoris Chronicon rerum per Austriam Vicinasque regiones gestarum inde ab anno 1025, usque ad annum 1282*, Munich, 1827--8, p. 9.

† *Trithem. Annal. Hirsaugiens*, T. II. p. 206.

‡ He issued a bull against them, Oct. 20, 1349. *Raynald. Trithem.* Loc. cit.

§ But as they at last ceased to excite astonishment, were no longer welcomed by the ringing of bells, and were not received with veneration, as before, they vanished as human imaginations are wont to do. *Saxon Chronicle*, by *Matt. Dresseren*. Wittenberg, 1596, fol. p. 340-341.

of the cross arrived at Avignon from Basle, and desired admission. The Pope, regardless of the intercession of several cardinals, interdicted their public penance, which he had not authorized ; and, on pain of excommunication, prohibited throughout Christendom the continuance of these pilgrimages.* Philip VI., supported by the condemnatory judgment of the Sorbonne, forbid their reception in France.† Manfred, King of Sicily, at the same time threatened them with punishment by death : and in the East they were withstood by several bishops, among whom was Janussius, of Gnesen,‡ and Preezlaw, of Breslaw, who condemned to death one of their masters, formerly a deacon ; and, in conformity with the barbarity of the times, had him publicly burnt.§ In Westphalia, where so shortly before, they had venerated the Brothers of the Cross, they now persecuted them with relentless severity ;|| and in the Mark, as well as in all the other countries of Germany, they pursued them, as if they had been the authors of every misfortune.¶

The processions of the Brotherhood of the Cross, undoubtedly promoted the spreading of the plague ; and it is evident, that the gloomy fanaticism which gave rise to them, would infuse a new poison into the already desponding minds of the people.

Still, however, all this was within the bounds of barbarous enthusiasm ; but horrible were the persecutions of the Jews, which were committed in most countries, with even greater exasperation than in the 12th century, during the first Crusades. In every destructive pestilence, the common people at first attribute the mortality to poison. No instruction avails ; the supposed testimony of their eyesight, is to them a proof, and they authoritatively demand the victims of their rage. On whom then was it so likely to fall, as on the Jews, the usurers and the strangers who lived at enmity with the Christians ? They were everywhere suspected of having poisoned the wells or infected the air.** They alone were considered as having brought this fearful mortality among the Christians.†† They were, in consequence, pursued with merciless cruelty ; and either indiscriminately given up to the fury of the populace, or sentenced by sanguinary tribunals, which, with all the forms of law, ordered them to be burnt alive. In times like these, much is indeed said of guilt and innocence ; but hatred and revenge bear down all discrimination, and the smallest probability magnifies suspicion into certainty.

* *Albert Argentinens.* Loc. cit. † *Guillelm de Nangis.* ‡ *Ditmar.* Loc. cit.

§ *Klose of Breslaw's Documental History and Description*, 8vo. Vol. II. p. 190. Breslaw, 1781.

|| *Limburg Chronicle*, p. 17.

¶ *Kehrberg's Description of Königsberg, i. e. Neumark*, 1724, 4to. p. 240.

** So says the Polish historian *Dlugoss*, Loc. cit., while most of his contemporaries, mention only the poisoning of the wells. It is evident, that in the state of their feelings, it mattered little to them to add another still more formidable accusation.

†† In those places where no Jews resided, as in Leipsig, Magdeburg, Brieg, Farnkenstein, &c. the grave-diggers were accused of the crime.—*V. Möshen's History of the Sciences in the March of Brandenburg*, T. II. p. 265.

These bloody scenes, which disgraced Europe in the 14th century, are a counterpart to a similar mania of the age, which was manifested in the persecutions of witches and sorcerers; and, like these, they prove, that enthusiasm, associated with hatred, and leagued with the baser passions, may work more powerfully upon whole nations, than religion and legal order; nay, that it even knows how to profit by the authority of both, in order the more surely to satiate with blood, the sword of long suppressed revenge.

The persecution of the Jews, commenced in September and October, 1348,* at Chillon, on the Lake of Geneva, where the first criminal proceedings were instituted against them, after they had long before been accused by the people of poisoning the wells; similar scenes followed in Bern and Freyburg, in January, 1349. Under the influence of excruciating suffering, the tortured Jews confessed themselves guilty of the crime imputed to them; and it being affirmed that poison had in fact been found in a well at Zoffingen, this was deemed a sufficient proof to convince the world; and the persecution of the abhorred culprits, thus appeared justifiable. Now, though we can take as little exception at these proceedings, as at the multifarious confessions of witches, because the interrogatories of the fanatic and sanguinary tribunals, were so complicated, that by means of the rack, the required answer must inevitably be obtained; and it is besides conformable to human nature, that crimes which are in every body's mouth, may, in the end, be actually committed by some, either from wantonness, revenge, or desperate exasperation: yet crimes and accusations, are, under circumstances like these, merely the offspring of a revengeful, frenzied, spirit in the people; and the accusers, according to the fundamental principles of morality, which are the same in every age, are the more guilty transgressors.

Already in the autumn of 1348, a dreadful panic, caused by the supposed poisoning, seized all nations; and in Germany especially, the springs and wells were built over, that nobody might drink of them, or employ the water for culinary purposes; and a long time, the inhabitants of numerous towns and villages, used only river and rain water.† The city gates were also guarded with the greatest caution,—only confidential persons were admitted; and if medicine, or any other article which might be supposed to be poisonous, was found in the possession of a stranger,—and it was natural that some should have these things by them for their private use,—they were forced to swallow a portion of it.‡ By this trying state of privation, distrust, and suspicion, the hatred against the supposed poisoners, became greatly increased, and often broke out in popular commotions,

* See the original proceedings, in the Appendix.

† *Hermann Gygantis Flores temporum, sive Chronicon Universale—Ed. Meuschen.* Lugdun, Bat. 1743. 4to. p. 139. Hermann, a Franciscan monk of Franconia, who wrote in the year 1349, was an eye-witness of the most revolting scenes of vengeance, throughout all Germany.

‡ *Guid. Cauliac.* Loc. cit.

which only served still further to infuriate the wildest passions. The noble and the mean, fearlessly bound themselves by an oath, to exterminate the Jews by fire and sword, and to snatch them from their protectors, of whom the number was so small, that throughout all Germany but few places can be mentioned where these unfortunate people were not regarded as outlaws—martyred and burnt.* Solemn summonses were issued from Bern to the towns of Basle, Freyburg in the Breisgau, and Strasburg, to pursue the Jews as poisoners. The Burgomasters and Senators, indeed, opposed this requisition; but in Basle the populace obliged them to bind themselves by an oath, to burn the Jews, and to forbid persons of that community from entering their city, for the space of two hundred years. Upon this, all the Jews in Basle, whose number could not have been inconsiderable, were enclosed in a wooden building, constructed for the purpose, and burnt together with it, upon the mere outcry of the people, without sentence or trial, which indeed would have availed them nothing. Soon after, the same thing took place at Freyburg. A regular Diet was held at Bennefeld, in Alsace, where the bishops, lords, and barons, as also deputies of the counts, (*query* counties?) and towns, consulted how they should proceed with regard to the Jews; and when the deputies of Strasburg—not indeed the bishop of this town, who proved himself a violent fanatic—spoke in favor of the persecuted, as nothing criminal was substantiated against them; a great outcry was raised, and it was vehemently asked, why, if so, they had covered their wells and removed their buckets? A sanguinary decree was resolved upon, of which the populace, who obeyed the call of the nobles, and superior clergy, became but the too willing executioners.† Wherever the Jews were not burnt, they were at least banished; and so being compelled to wander about, they fell into the hands of the country people, who without humanity, and regardless of all laws, persecuted them with fire and sword. At Spire, the Jews, driven to despair, assembled in their own habitations, which they set on fire, and thus consumed themselves with their families. The few that remained, were forced to submit to baptism; while the dead bodies of the murdered, which lay about the streets, were put into empty wine casks, and rolled into the Rhine, lest they should infect the air. The mob was forbidden to enter the ruins of the habitations that were burnt in the Jewish quarter; for the senate itself caused search to be made for the treasure, which is said to have been very considerable. At Strasburg, two thousand Jews were burnt alive in their own burial ground, where a large scaffold had been erected: a few who promised to embrace Christianity, were spared, and their children taken from the pile. The youth and beauty of several females also excited some commiseration; and they were snatched from death against their will: many, however, who forcibly made their escape from the flames, were murdered in the streets.

The senate ordered all pledges and bonds to be returned to the

* *Hermann. Loc. cit.*

† *Albert Argentin—Königshoven, Loc. cit.*

debtors, and divided the money among the work-people.* Many, however, refused to accept the base price of blood, and, indignant at the scenes of blood-thirsty avarice, which made the infuriated multitude forget† that the plague was raging around them, presented it to monasteries, in conformity with the advice of their confessors. In all the countries of the Rhine, these cruelties continued to be perpetrated during the succeeding months; and after quiet was in some degree restored, the people thought to render an acceptable service to God, by taking the bricks of the destroyed dwellings, and the tombstones of the Jews, to repair churches and to erect belfreys.‡

In Mayence alone, 12,000 Jews are said to have been put to a cruel death. The Flagellants entered that place in August; the Jews, on this occasion, fell out with the Christians, and killed several; but when they saw their inability to withstand the increasing superiority of their enemies, and that nothing could save them from destruction, they consumed themselves and their families, by setting fire to their dwellings. Thus also, in other places, the entry of the Flagellants gave rise to scenes of slaughter; and as thirst for blood was everywhere combined with an unbridled spirit of proselytism, a fanatic zeal arose among the Jews, to perish as martyrs to their ancient religion. And how was it possible, that they could from the heart embrace Christianity, when its precepts were never more outrageously violated? At Eslingen, the whole Jewish community burned themselves in their synagogue;§ and mothers were often seen throwing their children on the pile, to prevent their being baptised, and then precipitating themselves into the flames.|| In short, whatever deeds, fanaticism, revenge, avarice and desperation, in fearful combination, could instigate mankind to perform,—and where in such a case is the limit?—were executed in the year 1349, throughout Germany, Italy, and France, with impunity, and in the eyes of all the world. It seemed as if the plague gave rise to scandalous acts and frantic tumults, not to mourning and grief: and the greater part of those who, by their education and rank, were called upon to raise the voice of reason, themselves led on the savage mob to murder and to plunder. Almost all the Jews who saved their lives by baptism, were afterwards burnt at different times; for they continued to be accused of poisoning the water and the air. Christians also, whom philanthropy or gain had induced to offer them protection, were put on the rack and executed with them.¶ Many Jews who had embraced

* *Dies was ouch die Vergift, die die Juden döttete.* “This is also the poison that killed the Jews,” observes *Königshoven*, which he illustrates by saying, that their increase in Germany was very great, and their mode of gaining a livelihood, which, however, was the only resource left them, had engendered ill-will against them in all quarters.

† Many wealthy Jews, for example, were, on their way to the stake, stripped of their garments, for the sake of the gold coin that was sewed in them.—*Albert Argentinens.*

‡ *Spangenberg.* Loc. cit.

§ *Guillelm de Nangis.*—*Dlugoss.* Loc. cit.

¶ Vide preceding note.

¶ *Albert Argentinens.*

Christianity, repented of their apostacy,—and, returning to their former faith, sealed it with their death.*

The humanity and prudence of Clement VI., must, on this occasion, also be mentioned to his honour; but even the highest ecclesiastical power was insufficient to restrain the unbridled fury of the people. He not only protected the Jews at Avignon, as far as lay in his power, but also issued two bulls, in which he declared them innocent; and admonished all Christians, though without success, to cease from such groundless persecutions.† The Emperor Charles IV. was also favourable to them, and sought to avert their destruction, wherever he could; but he dared not draw the sword of justice, and even found himself obliged to yield to the selfishness of the Bohemian nobles, who were unwilling to forego so favourable an opportunity of releasing themselves from their Jewish creditors, under favour of an imperial mandate.‡ Duke Albert of Austria burned and pillaged those of his cities, which had persecuted the Jews,—a vain and inhuman proceeding, which, moreover, is not exempt from the suspicion of covetousness; yet he was unable, in his own fortress of Kyberg, to protect some hundreds of Jews, who had been received there, from being barbarously burnt by the inhabitants.§ Several other princes and counts, among whom was Ruprecht von der Pfalz, took the Jews under their protection, on the payment of large sums: in consequence of which they were called “Jew-masters,” and were in danger of being attacked by the populace and by their powerful neighbours|| These persecuted and ill-used people, except indeed where humane individuals took compassion on them at their own peril, or when they could command riches to purchase protection, had no place of refuge left but the distant country of Lithuania, where Boleslav V., Duke of Poland (1227–1279), had before granted them liberty of conscience; and King Cassimar the Great (1333–1370), yielding to the entreaties of Esther, a favourite Jewess, received them, and granted them further protection:¶ on

* *Spangenberg* describes a similar scene which took place at Kostnitz.

† *Guillelm de Nang.*—*Raynold.*

‡ *Histor. Landgrav. Thuring.* in *Pistor.* Loc. cit. Vol. I. p. 948.

§ *Anonym. Leobiens.* in *Pez.* Loc. cit.

|| *Spangenberg.* In the county of Mark, the Jews were no better off than in the rest of Germany. Margrave *Ludwig*, the Roman, even countenanced their persecutions, of which *Kehrberg*, Loc. cit. 241, gives the following official account: Coram cunctis Christi fidelibus praesentia percepturis, ego *Johannes* dictus de *Wedel* Advocatus, inelyti Principis Domini, *Ludovico* Marchionis, publice profiteor et recognosco, quod nomine Domini mei civitatem *Königsberg* visitavi et intravi, et ex parte Domini Marchionis, Consulibus ejusdem civitatis in adjutorium mihi assumtis, *Judaeos inibi morantes igne cremavi*, bonaque omnia eorundem *Judaeorum* ex parte Domini mei totaliter usurpavi et assumsi. In cujus testimonium praesentibus meis sigillum appendi. Datum A. D. 1351, in Vigilia S. Matthaei Apostoli.

¶ *Basnage Historie des Juifs.* A la Haye, 1716, 8vo. T. IX. Pt. II. Liv. IX. ch. 23. § 12–24. p. 664–679. This valuable work gives an interesting account of the state of the Jews of the middle ages. Compare *J. M. Joll's History of the Israelites from the time of the Maccabees to the present day.* T. VII. Berlin, 1827, 8vo. p. 8–262.

which account, that country is still inhabited by a great number of Jews, who by their secluded habits, have, more than any people in Europe, retained the manners of the middle ages.

But to return to the fearful accusations against the Jews : it was reported in all Europe, that they were in connexion with secret superiors in Toledo, to whose decrees they were subject, and from whom they had received commands respecting the coining of base money, poisoning, the murder of Christian children, &c. ;* that they received the poison by sea from remote parts, and also prepared it themselves from spiders, owls, and other venomous animals ; but, in order that their secret might not be discovered, that it was known only to their Rabbis and rich men.† Apparently there were but few who did not consider this extravagant accusation well founded ; indeed, in many writings of the fourteenth century, we find great acrimony with regard to the suspected poison-mixers, which plainly demonstrates the prejudice existing against them. Unhappily, after the confessions of the first victims in Switzerland, the rack extorted similar ones in various places. Some even acknowledged having received poisonous powder in bags, and injunctions from Toledo, by secret messengers. Bags of this description, were also often found in wells, though it was not unfrequently discovered that the Christians themselves had thrown them in ; probably to give occasion to murder and pillage ; similar instances of which may be found in the persecution of the witches.‡

This picture needs no additions. A lively image of the Black Plague, and of the moral evil which followed in its train, will vividly represent itself to him who is acquainted with nature and the constitution of society. Almost the only credible accounts of the manner of living, and of the ruin which occurred in private life, during this pestilence, are from Italy ; and these may enable us to form a just estimate of the general state of families in Europe, taking into consideration what is peculiar in the manners of each country.

“When the evil had become universal,” speaking of Florence, “the hearts of all the inhabitants were closed to feelings of humanity. They fled from the sick and all that belonged to them, hoping by these means to save themselves. Others shut themselves up in their

* *Albert Argentinens.*

† *Hermann. Gygas. Loc. cit.*

‡ On this subject see *Königshoven*, who has preserved very valuable original proceedings. The most important are, the criminal examination of ten Jews, at Chillon, on the Lake of Geneva, held in September and October, 1348.—V. Appendix. They produced the most strange confessions, and sanctioned, by the false name of justice, the blood-thirsty fanaticism which lighted the funeral piles. Copies of these proceedings were sent to Bern and Strasburg, where they gave rise to the first persecutions against the Jews.—V. also the original document of offensive and defensive alliance between *Berthold von Götz*, Bishop of Strasburg, and many powerful lords of the city of St asburg, against Charles IV. The latter saw himself compelled, in consequence, to grant to that city an amnesty for the Jewish persecutions, which in our days would be deemed disgraceful to an imperial crown. Not to mention many other documents, which no less clearly show the spirit of the fourteenth century, p. 1021, f.

houses, with their wives, their children and households, living on the most costly food, but carefully avoiding all excess. None were allowed access to them; no intelligence of death or sickness was permitted to reach their ear; and they spent their time in singing, and music, and other pastimes. Others, on the contrary, considered eating and drinking to excess, amusements of all descriptions, the indulgence of every gratification, and an indifference to what was passing around them, as the best medicine, and acted accordingly. They wandered day and night, from one tavern to another, and feasted without moderation or bounds. In this way they endeavoured to avoid all contact with the sick, and abandoned their houses and property to chance, like men whose death-knell had already tolled.

Amid this general lamentation and wo, the influence and authority of every law, human and divine, vanished. Most of those who were in office, had been carried off by the plague, or lay sick, or had lost so many members of their families, that they were unable to attend to their duties; so that henceforth every one acted as he thought proper. Others, in their mode of living, chose a middle course. They ate and drank what they pleased, and walked abroad, carrying odoriferous flowers, herbs or spices, which they smelt to from time to time, in order to invigorate the brain, and to avert the baneful influence of the air, infected by the sick, and by the innumerable corpses of those who had died of the plague. Others carried their precaution still further, and thought the surest way to escape death was by flight. They therefore left the city; women as well as men abandoning their dwellings and their relations; and retiring into the country. But of these also many were carried off, most of them alone and deserted by all the world, themselves having previously set the example. Thus it was, that one citizen fled from another—a neighbour from his neighbours—a relation from his relations;—and in the end, so completely had terror extinguished every kindlier feeling, that the brother forsook the brother—the sister the sister—the wife her husband; and at last, even the parent his own offspring, and abandoned them, unvisited and unsoothed, to their fate. Those, therefore, that stood in need of assistance fell a prey to greedy attendants; who for an exorbitant recompense, merely handed the sick their food and medicine, remained with them in their last moments, and then, not unfrequently, became themselves victims to their avarice and lived not to enjoy their extorted gain. Propriety and decorum were extinguished among the helpless sick. Females of rank seemed to forget their natural bashfulness, and committed the care of their persons, indiscriminately, to men and women of the lowest order. No longer were women, relatives or friends, found in the house of mourning, to share the grief of the survivors—no longer was the corpse accompanied to the grave by neighbours and a numerous train of priests, carrying wax tapers and singing psalms, nor was it borne along by other citizens of equal rank. Many breathed their last without a friend to smooth their dying pillow; and few indeed

were they who departed amid the lamentations and tears of their friends and kindred. Instead of sorrow and mourning, appeared indifference, frivolity and mirth; this being considered, especially by the females, as conducive to health. Seldom was the body followed by even ten or twelve attendants; and instead of the usual bearers and sextons, mercenaries of the lowest of the populace undertook the office for the sake of gain; and accompanied by only a few priests, and often without a single taper, it was borne to the very nearest church, and lowered into the first grave that was not already too full to receive it. Among the middling classes, and especially among the poor, the misery was still greater. Poverty or negligence induced most of these to remain in their dwellings, or in the immediate neighbourhood; and thus they fell by thousands; and many ended their lives in the streets, by day and by night. The stench of putrefying corpses was often the first indication to their neighbours that more deaths had occurred. The survivors, to preserve themselves from infection, generally had the bodies taken out of the houses, and laid before the doors; where the early morn found them in heaps, exposed to the affrighted gaze of the passing stranger. It was no longer possible to have a bier for every corpse,—three or four were generally laid together—husband and wife, father and mother, with two or three children, were frequently borne to the grave on the same bier; and it often happened that two priests would accompany a coffin, bearing the cross before it, and be joined on the way by several other funerals; so that instead of one, there were five or six bodies for interment.”

Thus far Boecacio. On the conduct of the priests, another contemporary observes: * “In large and small towns, they had withdrawn themselves through fear, leaving the performance of ecclesiastical duties to the few who were found courageous and faithful enough to undertake them.” But we ought not on that account to throw more blame on them than on others; for we find proofs of the same timidity and heartlessness in every class. During the prevalence of the Black Plague, the charitable orders conducted themselves admirably, and did as much good as can be done by individual bodies, in times of great misery and destruction; when compassion, courage, and the nobler feelings, are found but in the few,—while cowardice, selfishness and ill-will, with the baser passions in their train—assert the supremacy. In place of virtue which had been driven from the earth, wickedness everywhere reared her rebellious standard, and succeeding generations were consigned to the dominion of her baleful tyranny.

* *Guilhelm de Nangis*, p. 110,

CHAPTER VI.

PHYSICIANS.

IF we now turn to the medical talent which encountered the "Great Mortality," the middle ages must stand excused, since even the moderns are of opinion that the art of medicine is not able to cope with the Oriental plague, and can afford deliverance from it only under particularly favourable circumstances.* We must bear in mind, also, that human science and art appear particularly weak in great pestilences, because they have to contend with the powers of nature, of which they have no knowledge ; and which, if they had been, or could be comprehended in their collective effects, would remain uncontrollable by them, principally on account of the disordered condition of human society. Moreover, every new plague has its peculiarities, which are the less easily discovered on first view, because, during its ravages, fear and consternation humble the proud spirit.

The physicians of the 14th century, during the Black Death, did what human intellect could do in the actual condition of the healing art ; and their knowledge of the disease was by no means despicable. They, like the rest of mankind, have indulged in prejudices, and defended them, perhaps, with too much obstinacy : some of these, however, were founded in the mode of thinking of the age, and passed current, in those days, as established truths : others continue to exist to the present hour.

Their successors, in the 19th century, ought not, therefore, to vaunt too highly the pre-eminence of their knowledge, for they too will be subjected to the severe judgment of posterity—they, too, will, with reason, be accused of human weakness and want of foresight.

The medical faculty of Paris, the most celebrated of the 14th century, were commissioned to deliver their opinion on the causes of the Black Plague, together with some appropriate regulations with regard to living, during its prevalence. This document is sufficiently remarkable to find a place here.

"We, the Members of the College of Physicians, of Paris, have, after mature consideration and consultation on the present mortality, collected the advice of our old masters in the art, and intend to make known the causes of this pestilence, more clearly than could be done according to the rules and principles of astrology and natural science ; we, therefore, declare as follows:—

"It is known that in India, and the vicinity of the Great Sea, the constellations which combated the rays of the sun, and the warmth of the heavenly fire, exerted their power especially against

* "Curationem omnem respuit pestis confirmata."—*Chalın*, p. 33.

that sea, and struggled violently with its waters. Hence, vapours often originate which envelope the sun, and convert his light into darkness. These vapours alternately rose and fell for twenty-eight days ; but, at last, sun and fire acted so powerfully upon the sea, that they attracted a great portion of it to themselves, and the waters of the ocean arose in the form of vapour ; thereby the waters were in some parts so corrupted, that the fish, which they contained, died. These corrupted waters, however, the heat of the sun could not consume, neither could other wholesome water, hail or snow, and dew, originate therefrom. On the contrary, this vapour spread itself through the air in many places on the earth, and enveloped them in fog.

“Such was the case all over Arabia, in a part of India, in Crete, in the plains and valleys of Macedonia, in Hungary, Albania, and Sicily. Should the same thing occur in Sardinia, not a man will be left alive ; and the like will continue, so long as the sun remains in the sign of Leo, on all the islands and adjoining countries to which this corrupted sea-wind extends, or has already extended, from India. If the inhabitants of those parts do not employ and adhere to the following, or similar means and precepts, we announce to them inevitable death—except the grace of Christ preserve their lives.

“We are of opinion, that the constellations, with the aid of Nature, strive, by virtue of their divine might, to protect and heal the human race ; and to this end, in union with the rays of the sun, acting through the power of fire, endeavour to break through the mist. Accordingly, within the next ten days, and until the 17th of the ensuing month of July, this mist will be converted into a stinking deleterious rain, whereby the air will be much purified. Now, as soon as this rain announces itself, by thunder or hail, every one of you should protect himself from the air ; and, as well before as after the rain, kindle a large fire of vine-wood, green laurel, or other green wood ; wormwood and chamomile should also be burnt in great quantity in the market places, in other densely inhabited localities, and in the houses. Until the earth is again completely dry, and for three days afterwards, no one ought to go abroad in the fields. During this time the diet should be simple, and people should be cautious in avoiding exposure in the cool of the evening, at night, and in the morning. Poultry and water-fowl, young pork, old beef, and fat meat in general, should not be eaten ; but, on the contrary, meat of a proper age, of a warm and dry nature, by no means, however, heating and exciting. Broth should be taken, seasoned with ground pepper, ginger and cloves, especially by those who are accustomed to live temperately, and are yet choice in their diet. Sleep in the day-time is detrimental ; it should be taken at night, until sun-rise, or somewhat longer. At breakfast, one should drink little ; supper should be taken an hour before sun-set, when more may be drunk than in the morning. Clear light wine, mixed with a fifth or sixth part of water, should be used as a beverage.

Dried or fresh fruits, with wine, are not injurious ; but highly so without it. Beet-root, and other vegetables, whether eaten pickled or fresh, are hurtful ; on the contrary, spiey pot-herbs, as sage or rosemary, are wholesome. Cold, moist, watery food is, in general, prejudicial. Going out at night, and even until three o'clock in the morning, is dangerous, on account of the dew. Only small river fish should be used. Too much exercise is hurtful. The body should be kept warmer than usual, and thus protected from moisture and cold. Rain-water must not be employed in cooking, and every one should guard against exposure to wet weather. If it rain, a little fine treacle should be taken after dinner. Fat people should not sit in the sunshine. Good clear wine should be selected, and drunk often, but in small quantities, by day. Olive oil, as an article of food, is fatal. Equally injurious are fasting or excessive abstemiousness, anxiety of mind, anger, and excessive drinking. Young people, in autumn especially, must abstain from all these things, if they do not wish to run a risk of dying of dysentery. In order to keep the body properly open, an enema, or some other simple means, should be employed, when necessary. Bathing is injurious. Men must preserve chastity as they value their lives. Every one should impress this on his recollection, but especially those who reside on the coast, or upon an island into which the noxious wind has penetrated.”*

On what occasion these strange precepts were delivered can no longer be ascertained, even if it were an object to know it. It must be acknowledged, however, that they do not redound to the credit either of the faculty of Paris, or of the 14th century in general. This famous faculty found themselves under the painful necessity of being wise at command, and of firing a point blank shot of erudition at an enemy who enveloped himself in a dark mist, of the nature of which they had no conception. In concealing their ignorance by authoritative assertions, they suffered themselves, therefore, to be misled ; and while endeavouring to appear to the world with eclat, only betrayed to the intelligent their lamentable weakness. Now some might suppose, that in the condition of the sciences in the 14th century, no intelligent physicians existed ; but this is altogether at variance with the laws of human advancement, and is contradicted by history. The real knowledge of an age, is only shown in the archives of its literature. Men of talent here alone deposit the results of their experience and reflection, without vanity or a selfish object ;—here alone the genius of truth speaks audibly. There is no ground for believing that, in the 14th century, men of this kind were publicly questioned regarding their views ; and it is, therefore, the more necessary that impartial history should take up their cause and do justice to their merits.

The first notice on this subject is due to a very celebrated teacher

* *Jacob. Francischini de Ambrosiis.* In the Appendix to the *Istorie Pistolesi. Muratori*, Tom. XI. p. 528.

in Perugia, Gentilis of Foligno, who, on the 18th of June, 1348, fell a sacrifice to the plague, in the faithful discharge of his duty.* Attached to Arabian doctrines, and to the universally respected Galen, he, in common with all his cotemporaries, believed in a putrid corruption of the blood in the lungs and in the heart, which was occasioned by the pestilential atmosphere, and was forthwith communicated to the whole body. He thought, therefore, that every thing depended upon a sufficient purification of the air, by means of large blazing fires of odoriferous wood, in the vicinity of the healthy, as well as of the sick, and also upon an appropriate manner of living; so that the putridity might not overpower the diseased. In conformity with notions derived from the ancients, he depended upon bleeding and purging, at the commencement of the attack, for the purpose of purification; ordered the healthy to wash themselves frequently with vinegar or wine, to sprinkle their dwellings with vinegar, and to smell often to camphor, or other volatile substances. Hereupon he gave, after the Arabian fashion, detailed rules, with an abundance of different medicines, of whose healing powers wonderful things were believed. He laid little stress upon super-lunar influences, so far as respected the malady itself; on which account, he did not enter into the great controversies of the astrologers, but always kept in view, as an object of medical attention, the corruption of the blood in the lungs and heart. He believed in a progressive infection from country to country, according to the notions of the present day; and the contagious power of the disease, even in the vicinity of those affected by plague, was, in his opinion, beyond all doubt.† On this point, intelligent cotemporaries were all agreed; and, in truth, it required no great genius to be convinced of so palpable a fact. Besides, correct notions of contagion have descended from remote antiquity, and were maintained unchanged in the 14th century.‡ So far back as the age of Plato, a knowledge of the contagious power of malignant inflammations of the eye, of which also no physician of the middle ages entertained a doubt,§ was general among the people;|| yet, in modern times, surgeons have filled volumes with partial controversies on this subject. The whole language of antiquity has adapted itself to the notions of the people, respecting the contagion of pestilential diseases; and their terms were, beyond comparison, more expressive than those in use among the moderns.¶

* *Gentilis de Fulgineo, Consilia. De Peste cons. I. II. fol. 76. 77. Venet. 1514. fol.*

† “*Venenosa putredo circa partes cordis et pulmonis de quibus exeunte venenoso vapore, periculum est in vicinitatibus.*” *Cons. I. fol. 76, a.*

‡ *Dr. Maclean's* notion that the doctrine of contagion was first promulgated in the year 1547, by Pope Paul III. &c., thus falls to the ground, together with all the arguments founded on it.—See *Maclean on Epid. and Pestilent. Diseases, 8vo. 1817, Pt. II. Book II. ch. 3. 4.—Transl. note.*

§ *Lippitudo contagione spectantium oculos afficit.*—*Chalin de Vinario, p. 149.*

|| See the Author's *Geschichte der Heilkunde, Vol. II. P. III.*

¶ Compare *Murx, Origines contagii. Caroliruh. et Bad. 1821. 8.*

Arrangements for the protection of the healthy against contagious diseases, the necessity of which is shown from these notions, were regarded by the ancients as useful : and by many, whose circumstances permitted it, were carried into effect in their houses. Even a total separation of the sick from the healthy, that indispensable means of protection against infection by contact, was proposed by physicians of the 2d century after Christ, in order to check the spreading of leprosy. But it was decidedly opposed, because, as it was alleged, the healing art ought not to be guilty of such harshness.* This mildness of the ancients, in whose manner of thinking inhumanity was so often and so undisguisedly conspicuous, might excite surprise, if it were any thing more than apparent. The true ground of the neglect of public protection against pestilential diseases, lay in the general notion and constitution of human society,—it lay in the disregard of human life, of which the great nations of antiquity have given proofs in every page of their history. Let it not be supposed that they wanted knowledge respecting the propagation of contagious diseases. On the contrary, they were as well informed on this subject as the moderns ; but this was shown where individual property, not where human life, on the grand scale, was to be protected. Hence the ancients made a general practice of arresting the progress of murrains among cattle, by a separation of the diseased from the healthy. Their herds alone enjoyed that protection which they held it impracticable to extend to human society, because they had no wish to do so.† That the governments in the 14th century, were not yet so far advanced, as to put into practice general regulations for checking the plague, needs no especial proof. Physicians could, therefore only advise public purifications of the air by means of large fires, as had often been practised in ancient times ; and they were obliged to leave it to individual families, either to seek safety in flight, or to shut themselves up in their dwellings,‡ a method which answers in common plagues, but which here afforded no complete security, because such was the fury of the disease when it was at its height, that the atmosphere of whole cities was penetrated by the infection.

Of the astral influence which was considered to have originated the “ Great Mortality,” physicians and learned men were as completely convinced as of the fact of its reality. A grand conjunction of the three superior planets, Saturn, Jupiter, and Mars, in the sign

* *Cael. Aurelianus*, Chron. L. IV. c. I. p. 497. *Ed. Amman*. “ Sed hi ægrotantem distinuendum magis imperant, quam curandum, quod a se alienum humanitas approbat medicinar.”

† *Geschichte der Heilkunde*, Vol. II. p. 248.

‡ *Chalvin* assures us expressly, that many nunneries, by closing their gates, remained free from the contagion. It is worthy of note, and quite in conformity with the prevailing notions, that the continuance in a thick, moist atmosphere, was generally esteemed more advantageous and conservative, on account of its being more impenetrable to the astral influence, inasmuch as the inferior cause kept off the superior.—*Chalvin*, p. 48.

of Acquarius, which took place, according to Guy de Chauliac, on the 24th of March, 1345, was generally received as its principal cause. In fixing the day, this physician, who was deeply versed in astrology, did not agree with others; whereupon there arose various disputations, of weight in that age, but of none in ours: people, however, agreed in this, that conjunctions of the planets infallibly prognosticated great events; great revolutions of kingdoms, new prophets, destructive plagues, and other occurrences which bring distress and horror on mankind. No medical author of the 14th or 15th century, omits an opportunity of representing them as among the general prognostics of great plagues; nor can we, for our parts, regard the astrology of the middle ages, as a mere offspring of superstition. It has not only, in common with all ideas which inspire and guide mankind, a high historical importance, entirely independent of its error of truth—for the influence of both is equally powerful—but there are also contained in it, as in alchymy, grand thoughts of antiquity, of which modern natural philosophy is so little ashamed that she claims them as her property. Foremost among these, is the idea of the general life which diffuses itself throughout the whole universe, expressed by the greatest Greek sages, and transmitted to the middle ages, through the new Platonic natural philosophy. To this impression of an universal organism, the assumption of a reciprocal influence of terrestrial bodies could not be foreign,* nor did this cease to correspond with a higher view of nature, until astrologers overstepped the limits of human knowledge with frivolous and mystical calculations.

Guy de Chauliac, considers the influence of the conjunction, which was held to be all-potent, as the chief, general cause of the Black Plague; the diseased state of bodies, the corruption of the fluids, debility, obstruction, and so forth, as the especial subordinate causes.† By these, according to his opinion, the quality of the air, and of the other elements, was so altered, that they set poisonous fluids in motion towards the inmost parts of the body, in the same manner as the magnet attracts iron; whence there arose in the commencement fever and the spitting of blood; afterwards, however, a deposition in the form of glandular swellings and inflammatory boils. Herein the notion of an epidemic constitution was set forth clearly and conformably, to the spirit of the age. Of contagion, Guy de Chauliac was completely convinced. He sought to protect himself against it by the usual means;‡ and it was pro-

* This was called *Affluxus*, or *Forma specifica*, and was compared to the effect of a magnet on iron, and of amber on chaff.—*Chalín de Vinario*, p. 23.

† *Causa universalis agens—causa particularis patiens*. To this correspond, in *Chalín*, the expressions *Causa superior et inferior*.

‡ Purging with aloëtic pills; bleeding; purification of the air by means of large fires, the use of treacle; frequent smelling to volatile substances, of which certain "poma," were prepared; the internal use of Armenian bole,—a plague-remedy derived from the Arabians, and, throughout the middle ages, much in vogue, and very improperly used; and the employment of acescent food, in order to resist putridity. *Guy de Chauliac* appears to have recommended flight to many.

bably he who advised Pope Clement VI. to shut himself up while the plague lasted. The preservation of this pope's life, however, was most beneficial to the city of Avignon, for he loaded the poor with judicious acts of kindness,—took care to have proper attendants provided, and paid physicians himself to afford assistance wherever human aid could avail; an advantage which, perhaps, no other city enjoyed.* Nor was the treatment of plague patients in Avignon by any means objectionable; for, after the usual depletions by bleeding and aperients, where circumstances required them, they endeavoured to bring the buboes to suppuration; they made incisions into the inflammatory boils, or burned them with a red-hot iron, a practice which at all times proves salutary, and in the Black Plague saved many lives. In this city, the Jews, who lived in a state of the greatest filth, were most severely visited, as also the Spaniards, whom Chalin accuses of great intemperance.†

Still more distinct notions on the causes of the plague were stated to his cotemporaries in the 14th century, by Galeazzo di Santa Sofia, a learned man, a native of Padua, who likewise treated plague-patients at Vienna,‡ though in what year is undetermined. He distinguishes carefully *pestilence* from *epidemie* and *endemie*. The common notion of the two first accords exactly with that of an epidemic constitution, for both consist, according to him, in an unknown change or corruption of the air; with this difference, that *pestilence* calls forth diseases of different kinds; *epidemie*, on the contrary, always the same disease. As an example of an *epidemie*, he adduces a cough (influenza) which was observed in all climates at the same time, without perceptible cause; but he recognized the approach of *pestilence*, independently of unusual natural phenomena, by the more frequent occurrence of various kinds of fever, to which the modern physicians would assign a nervous and putrid character. The *endemie* originates, according to him, only in local telluric changes—in deleterious influences which develop themselves in the earth and in the water, without a corruption of the air. These notions were variously jumbled together in his time, like everything which human understanding separates by too fine a line of limitation. The estimation of cosmical influences, however, in the *epidemie* and *pestilence*, is well worthy of commendation; and Santa Sofia, in this respect, not only agrees with the most intelligent persons of the 14th and 15th centuries, but he has also promulgated an opinion which must, even now, serve as a foundation for our scarcely commenced investigations into cosmical influences.§ *Pestilence* and *epidemie*, consist, not in alterations of the four primary qualities,|| but in a corruption of the air, powerful, though quite immaterial, and not cognoscible by the senses: (corruptio aëris non substantialis,

Loc. citat. p. 115. Compare Chalin, L. II. who gives most excellent precepts on this subject.

* Auger. de Bitteris. Loc. cit.

† L. I. c. 4. p. 39.

‡ Fol. 32 a. a. O.

§ Galeacii de Sancta Sophia, Liber de Febribus. Venet. 1514, fol. (Printed together with Guilelmus Brixiensis, Marsilius de Sancta Sophia, Ricardus Parisiensis. fol. 29. seq.)

|| Warmth, cold, dryness, and moisture.

sed qualitativa) in a disproportion of the imponderables in the atmosphere, as it would be expressed by the moderns.* The causes of the *pestilence* and *epidemie* are, first of all, astral influences, especially on occasion of planetary conjunctions; then extensive putrefaction of animal and vegetable bodies, and terrestrial corruptions (*corruptio in terra*); to which also, bad diet and want may contribute. Santo Sofia considers the putrefaction of locusts, that had perished in the sea, and were again thrown up, combined with astral and terrestrial influences, as the cause of the pestilence in the eventful year of the "Great Mortality."

All the fevers which were called forth by the *pestilence*, are, according to him, of the putrid kind; for they originate principally from putridity of the heart's blood, which inevitably follows the inhalation of infected air. The Oriental Plague is, sometimes, but by no means always, occasioned by *pestilence*(?), which imparts to it a character (*qualitas occulta*) hostile to human nature. It originates frequently from other causes, among which, this physician was aware that contagion was to be reckoned; and it deserves to be remarked, that he held epidemic small-pox and measles to be infallible forerunners of the plague, as do the physicians and people of the East† at the present day.

In the exposition of his therapeutical views of the plague, a clearness of intellect is again shown by Santa Sofia, which reflects credit on the age. It seemed to him to depend, 1st, on an evacuation of putrid matters, by purgatives and bleeding: yet he did not sanction the employment of these means indiscriminately, and without consideration; least of all where the condition of the blood was healthy. He also declared himself decidedly against bleeding *ad deliquium* (*venæ sectio eradicativa*). 2d, Strengthening of the heart and prevention of putrescence. 3d, Appropriate regimen. 4th, Improvement of the air. 5th, Appropriate treatment of tumid glands and inflammatory boils, with emollient, or even stimulating poultices (mustard, lily-bulbs), as well as with red-hot gold and iron. Lastly, 6th, Attention to prominent symptoms. The stores of the Arabian pharmacy, which he brought into action to meet all these indications, were indeed very considerable; it is to be observed, however, that, for the most part, gentle means were accumulated, which in case of abuse, would do no harm; for the character of the Arabian system of medicine, whose principles were everywhere followed at this time, was mildness and caution. On this account too, we cannot believe that a very prolix treatise by Marsigli di Santa Sofia,‡ a cotemporary relative of Galeazzo, on the prevention and treatment

* The talented *Chalin* entertains the same conviction, "*Obseurum interdum esse vitium aëris, sub pestis initia et menses primos, hoc est argumento: quod cum nec odore tetra gravis, nec turpi colore fœdatus fuerit, sed purus, tenuis, frigidus, qualis in montosis et asperis locis esse solet, et tranquillius, vehementissima sit tamen pestilentia infestaque*, etc." p. 28. The most recent observers of malaria have stated nothing more than this.

† Compare *Enr. di Wolmar*, Abhandlung über die Pest. Berlin, 1827. 8vo.

‡ Tractatus de Febribus, fol. 48.

of plague, can have caused much harm, although, perhaps, even in the 14th century, an agreeable latitude and confident assertions respecting things which no mortal has investigated, or which it is quite a matter of indifference to distinguish, were considered as proofs of a valuable practical talent.

The agreement of cotemporary and later writers, shows that the published views of the most celebrated physicians of the 14th century, were those generally adopted. Among these, Chalin de Vinario is the most experienced. Though devoted to astrology, still more than his distinguished cotemporary, he acknowledges the great power of terrestrial influences, and expresses himself very sensibly on the indisputable doctrine of contagion, endeavouring thereby to apologize for many surgeons and physicians of his time, who neglected their duty.* He asserted boldly, and with truth, "*that all epidemic diseases might become contagions,† and all fevers epidemic,*" which attentive observers of all subsequent ages have confirmed.

He delivered his sentiments on blood-letting with sagacity, as an experienced physician; yet he was unable, as may be imagined, to moderate the desire for bleeding shown by the ignorant monks. He was averse to draw blood from the veins of patients under fourteen years of age; but counteracted inflammatory excitement in them by cupping; and endeavoured to moderate the inflammation of the tumid glands by leeches.‡ Most of those who were bled, died; he therefore reserved this remedy for the plethoric; especially for the papal courtiers, and the hypocritical priests, whom he saw gratifying their sensual desires, and imitating Epicurus, whilst they pompously pretended to follow Christ.§ He recommended burning the boils with a red-hot iron, only in the plague without fever, which occurred in single cases;|| and was always ready to correct those over-hasty surgeons, who, with fire and violent remedies, did irremediable injury to their patients¶ Michael Savonarola, professor in Ferrara (1462), reasoning on the susceptibility of the human frame to the influence of pestilential infection, as the

* *De Peste Liber, pura latinitate donatus a Jacobo Dalechampio, Lugdun. 1552. 16. p. 40. 188.* "Longe tamen plurimi congressu eorum qui fuerunt in locis pestilentibus periclitantur et gravissime, quendam e causa duplici, nempe et aëris vitio, et eorum qui versantur nobiscum, vitio. *Hoc itaque modo fit, ut unius accessu in totam modo familiam, modo civitatem, modo villam, pestis inechatur.*" Compare p. 20, "Solæ privatorum aedes pestem sentiunt, si adeat qui in pestilenti loco versatus est."—Nobis proximi ipsi sumus, nemoque est tanta occæcatus amentia, qui de sua salute potius quam aliorum sollicitus non sit, maxime in contagione tam cita et rapida." Rather a loose principle, which might greatly encourage low sentiments, and much endanger the honour of the medical profession, but which, in *Chalin*, who was aware of the impossibility of avoiding contagion in uncleanly dwellings, is so far excusable, that he did not apply it to himself.

† *Morbos omnes pestilentes contagiosos, audacter ego equidem pronuntio et assevero, p. 149.*

‡ Vide preceding note, p. 162, 163.

§ *Ibid. p. 97. 166.* "Qualis (vita) esse solet eorum, qui sacerdotiorum et cultus divini prætextu, genio plus satis indulgent et obsequuntur, ac Christum speciosis titulis ementientes, Epicurum imitantur." Certainly a remarkable freedom of sentiment for the 14th century.

¶ *Ibid. p. 183. 151.*

¶ *Ibid. p. 159. 189.*

cause of such various modifications of disease, expresses himself as a modern physician would on this point ; and an adoption of the principle of contagion, was the foundation of his definition of the plague.* No less worthy of observation are the views of the celebrated Valescus of Taranta, who, during the final visitation of the Black Death, in 1382, practised as a physician at Montpellier, and handed down to posterity what has been repeated in innumerable treatises on plague, which were written during the 15th and 16th centuries.†

Of all these notions and views regarding the plague, whose development we have represented, there are two especially, which are prominent in historical importance :—1st, The opinion of learned physicians, that the *pestilence*, or epidemic constitution, is the *parent of various kinds of disease* ; that the plague sometimes, indeed, but by no means always, originates from it : that, to speak in the language of the moderns, the *pestilence* bears the same relation to contagion, that a predisposing cause does to an occasional cause : and 2dly, the universal conviction of the contagious power of that disease.

Contagion gradually attracted more notice : it was thought that in it, the most powerful occasional cause might be avoided ; the possibility of protecting whole cities by separation, became gradually more evident ; and so horrifying was the recollection of the eventful year of the “ *Great Mortality*,” that before the close of the 14th century, ere the ill effects of the Black Plague had ceased, nations endeavoured to guard against the return of this enemy, by an earnest and effectual defence.

The first regulation which was issued for this purpose, originated with Viscount Bernabo, and is dated the 17th Jan. 1374. “ Every plague-patient was to be taken out of the city into the fields, there to die or to recover. Those who attended upon a plague-patient, were to remain apart for ten days, before they again associated with any body. The priests were to examine the diseased, and point out to special commissioners, the persons infected ; under punishment of the confiscation of their goods, and of being burned alive. Whoever imported the plague, the state condemned his goods to confiscation. Finally, none except those who were appointed for that purpose, were to attend plague-patients, under penalty of death and confiscation.‡

These orders, in correspondence with the spirit of the 14th century, are sufficiently decided to indicate a recollection of the good effects of confinement, and of keeping at a distance those suspected of having plague. It was said that Milan itself, by a rigorous

* Canonica de Febribus, ad Raynerium Siculum, 1487, s. l., cap. 10, sine pag. “Febris pestilentialis est febris contagiosa ex ebullitione putrefactiva in altero quatuor humorum cordi propinquo principaliter.”

† *Valesci de Tharanta*, Philonium. Lugdani, 1535. 8. L. VII., c. 18., fol. 401., b. seq.—Compare *Astruc*, Mémoires pour servir à l’Histoire de la Faculté de Médecine de Montpellier, Paris, 1767. 4. p. 208

‡ Chronicon Regiense, *Muratori*, Tom. XVIII. p. 82.

barricado of three houses in which the plague had broken out, maintained itself free from the "*Great Mortality*," for a considerable time;* and examples of the preservation of individual families, by means of a strict separation, were certainly very frequent. That these orders must have caused universal affliction from their uncommon severity, as we know to have been especially the case in the city of Reggio, may be easily conceived; but Bernabo did not suffer himself to be frightened from his purpose—on the contrary, when the plague returned in the year 1383, he forbade the admission of people from infected places into his territories, on pain of death.† We have now, it is true, no account how far he succeeded; yet it is to be supposed that he arrested the disease, for it had long lost the property of the Black Death, to spread abroad in the air the contagious matter which proceeded from the lungs, charged with putridity, and to taint the atmosphere of whole cities by the vast numbers of the sick. Now that it had resumed its milder form, so that it infected only by contact, it admitted being confined within individual dwellings, as easily as in modern times.

Bernabo's example was imitated; nor was there any century more appropriate for recommending to governments strong regulations against the plague, than the 14th; for when it broke out in Italy, in the year 1399, and still demanded new victims, it was for the 16th time; without reckoning frequent visitations of measles and small-pox. In this same year, Viscount John, in milder terms than his predecessor, ordered that no stranger should be admitted from infected places, and that the city gates should be strictly guarded. Infected houses were to be ventilated for at least eight or ten days, and purified from noxious vapours by fires, and by fumigations with balsamic and aromatic substances. Straw, rags, and the like, were to be burned; and the bedsteads which had been used, set out for four days in the rain or the sunshine, so that, by means of the one or the other, the morbid vapour might be destroyed. No one was to venture to make use of clothes or beds out of infected dwellings, unless they had been previously washed and dried either at the fire or in the sun. People were, likewise, to avoid, as long as possible, occupying houses which had been frequented by plague-patients.‡

We cannot precisely perceive in these an advance towards general regulations; and perhaps people were convinced of the insurmountable impediments which opposed the separation of open inland countries, where bodies of people connected together could not be brought, even by the most obdurate severity, to renounce the habit of a profitable intercourse.

* *Adr. Chenot*, *Hinterlassene Abhandlungen über die ärztlichen und politischen Anstalten bei der Pestseuche*, Wien, 1798, 8vo. p. 146. From this period it was common in the middle ages to barricade the doors and windows of houses infected with plague, and to suffer the inhabitants to perish without mercy.—*S. Möhsen*, *Loc. cit.*

† *Chron. Reg. Loc. cit.*

‡ *Muratorius*, Tom. XVI., p. 560.—Compare *Chenot*, *loc. cit.* p. 146.

Doubtless it is Nature which has done the most to banish the Oriental plague from western Europe, where the increasing cultivation of the earth, and the advancing order in civilized society, prevented it from remaining domesticated; which it most probably had been in the more ancient times.

In the fifteenth century, during which it broke out seventeen times in different places in Europe*, it was of the more consequence to oppose a barrier to its entrance from Asia, Africa, and Greece (which had become Turkish); for it would have been difficult for it to maintain itself indigenously any longer. Among the southern commercial states, however, which were called on to make the greatest exertions to this end, it was principally Venice, formerly so severely attacked by the black plague, that put the necessary restraint upon the perilous profits of the merchant. Until towards the end of the fifteenth century, the very considerable intercourse with the East was free and unimpeded. Ships of commercial cities had often brought over the plague: nay, the former irruption of the *great mortality* itself had been occasioned by navigators. For, as in the latter end of Autumn, 1347, four ships full of plague-patients returned from the Levant to Genoa, the disease spread itself there with astonishing rapidity. On this account, in the following year, the Genoese forbid the entrance of suspected ships into their port. These sailed to Pisa and other cities on the coast, where already Nature had made such mighty preparations for the reception of the Black Plague, and what we have already described took place in consequence.†

In the year 1485, when, among the cities of northern Italy, Milan especially felt the scourge of the plague, a special council of health, consisting of three nobles, was established at Venice, who probably tried every thing in their power to prevent the entrance of this disease, and gradually called into activity all those regulations which have served in later times as a pattern for the other southern states of Europe. Their endeavours were, however, not crowned with complete success; on which account their powers were increased, in the year 1504, by granting them the right of life and death over those who violated the regulations.‡ Bills of health were probably first introduced in the year 1527, during a fatal plague§ which visited Italy for five years (1525—30), and called forth redoubled caution.

The first lazarettos were established upon islands at some distance from the city, seemingly as early as the year 1485. Here all strangers coming from places where the existence of plague was suspected were detained. If it appeared in the city itself, the sick were despatched with their families to what was called the Old

* Papon, loc. cit.

† Chenot, p. 145.

‡ *Le Bret*, Staatsgeschichte der Republik Venedig. Riga, 1775. 4, Part II., Div. 2, p. 752.

§ *Zagata*, Cronica di Verona, 1714. 4, III., p. 93.

Lazaretto, were there furnished with provisions and medicines, and, when they were cured, were detained, together with all those who had had intercourse with them, still forty days longer in the New Lazaretto, situated on another island. All these regulations were every year improved, and their needful rigour was increased, so that from the year 1585 onwards no appeal was allowed from the sentence of the Council of Health; and the other commercial nations gradually came to the support of the Venetians, by adopting corresponding regulations.* Bills of health, however, were not general until the year 1665.†

The appointment of a forty days' detention, whence quarantines derive their name, was not dictated by caprice, but probably had a medical origin, which is derivable in part from the doctrine of critical days; for the fortieth day, according to the most ancient notions, has been always regarded as the last of ardent diseases, and the limit of separation between these and those which are chronic. It was the custom to subject lying-in women for forty days to a more exact superintendence. There was a good deal also said in medical works of forty day epochs in the formation of the foetus, not to mention that the alchymists expected more durable revolutions in forty days, which period they called the philosophical month.

This period being generally held to prevail in natural processes, it appeared reasonable to assume and legally to establish it as that required for the development of latent principles of contagion, since public regulations cannot dispense with decisions of this kind, even though they should not be wholly justified by the nature of the case. Great stress has likewise been laid on theological and legal grounds which were certainly of greater weight in the fifteenth century than in more modern times.‡

On this matter, however, we cannot decide, since our only object here is to point out the origin of a political means of protection against a disease, which has been the greatest impediment to civilization within the memory of man; a means, that, like Jenner's vaccine after the small-pox had ravaged Europe for twelve hundred years, has diminished the check which mortality puts on the progress of civilization, and thus given to the life and manners of the nations of this part of the world a new direction, the result of which we cannot foretel.

* *Le Bret*, loc. cit. Compare *Hamburger Remarquens* of the year 1700, p. 282 and 305.

† *Göttinger gelehrte Anzeigen*, 1772, p. 22.

‡ The forty days' duration of the Flood, the forty days' sojourn of Moses on Mount Sinai, our Saviour's fast for the same length of time in the wilderness; lastly, what is called the Saxon term (*Sächsische Frist*), which lasts for forty days, &c. Compare *G. W. Wedel*. *Centuria Exercitationum Medico-philologicarum*. *De Quadragesima Medica*. Jena, 1701. 4, Dec. IV., p. 16.

APPENDIX.

I.

DAS ALTE GEISSLERLIED

NACH MASSMANN'S AUSGABE VON HERRN PROFESSOR LACHMANN MIT DER HANDSCHRIFT VERGLICHEN.

- Sve siner sele wille pleghen
De sal gelden unde weder geuen
So wert siner sele raed
Des help uns leue herre goed
- 5 Nu tredet here we botsen wille
Vle wi io de hetsen helle.
Lucifer is en bose geselle
Sven her hauet
Mit peke he en lanet
- 10 Datz vle wi ef wir hauen sin
Des help uns maria koninghin
Das wir dines kindes hulde win
Jesus crist de wart ge vanghen
An en cruce wart he ge hanghen
- 15 Dat cruce wart des blodes rod
Wer klagghen sin marter unde sindod
Sunder war mide wilt tu mi lonen
Dre negele unde en dornet crone
Das cruce vrone en sper en stich
- 20 Sunder datz leyd ich dor dich
Was wltu nu liden dor mich
So rope wir herre mit luden done
Unsen deust den nem to lone
Be hode uns vor der helle nod
- 25 Ces bidde wi dich dor dinen dod
Dor god vor gete wi unse blot
Dat is uns tho den suden guot
Maria muoter koninginghe
Dor dines leuen kindes minne
- 30 Al unse nod si dir ghe klagghet
Des help uns moter magghet reyne.
De erde beuet och kleuen de steyne
Lebe hertze du salt weyne
Wir weenen trene mit den oghen
- 35 Unde hebben des so guden louen
Mit unsen sinnen unde mit hertzen
Dor uns leyd crist vil manighen
smertzen
Nu slaed w sere
Dor cristus ere.
- 40 Dor god nu latet de sunde mere
Dor god nu latet de sunde varen
Se wil sich god ouer uns en barmen
Maria stund in grotzen noden
Do se ire leue kint sa doden
- 45 En svert dor ire sele suet
Sunder dat la di wesen led
In korter vrist
God tornich ist
Jesus wart gelauet mid gallen
- 50 Des sole wi an en cruce vallen
Er heuet uch mit uwen armen
Dat sie god ouer unsen barme
Jesus dorch dine namen dry
Nu make uns hir van sunde vry
- 55 Jesus dor dine wnden rod
Be hod uns vor den gehen dod
Dat he sende sinen geist
Und uns dat kortelike leist
De vrowe unde man ire e tobreken
- 60 Dat wil god selven an en wreken
Sveuel pik und och de galle
Dat gutet de duuel in se alle
Vor war sint se des duuels spot
Dor vor behode uns herre god
- 65 De e de ist en reyne leuen
De had uns god selven gheuen
Ich rade uch vrowen unde mannen
Dor god gy solen houard annen
Des biddet uch de arme sele
- 70 Dorch god nu latet houard mere
Dor god nu latet houard varen
So wil sich god ouer unsen barmen
Cristus rep in hemelrike
Sinen engelen al gelike
- 75 De cristenheit wil mi ent wichen
Des wil lan och se vor gaen
Maria bat ire kint so sere
Leue kint la se di boten
Dat wil ich seeppen dat se moten

- 80 Bekeren sich.
Des bidde ich dich
Gi logenere
Gy meynen ed sverer
Gi bichten reyne und lan de sunde
uch ruwen
85 So wil sich god in uch vor nuwen
Owe de arme wokerere
Du bringest en lod up en punt
Dat senket din an der helle grunt
Ir morder und ir straten rouere
90 Ir sint dem leuen gode un mere
Ir ne wilt uch ouer nemende barmen

- Des sin gy eweliken vor loren
Were dusse bote nicht ge worden
De cristenheit wer gar vorsunden
95 De leyde duuel had se ge bunden
Maria had lost unsen bant
Sunder ich saghe di leue mere
Sunte peter is portenere
Wende dich an en he letset dich in
100 He bringhet dich vor de koninghin
Leue herre sunte Michahel
Du bist en plegher aller sel
Be hode uns vor der helle nod
Dat do dor dines seeppers dod

THE ANCIENT SONG OF THE FLAGELLANTS

ACCORDING TO MASSMANN'S EDITION COMPARED WITH THE MS. BY PROFESSOR
LACHMANN.

(Translation).

- WHO'E'R to save his soul is fain,
Must pay and render back again.
His safety so shall he consult:
Help us, good Lord, to this result.
5 Ye that repent your crimes, draw
nigh;
From the burning hell we fly,
From Satan's wicked company.
Whom he leads
With pitch he feeds.
10 If we be wise we this shall flee.
Maria! Queen! we trust in thee,
To move thy Son to sympathy.
Jesus Christ was captive led,
And to the cross was riveted.
15 The cross was reddened with his
gore
And we his martyrdom deplore.
"Sinner, canst thou to me atone,
"Three pointed nails, a thorny
crown,
"The holy cross, a spear, a wound,
20 "These are the cruel pangs I found.
"What wilt thou, sinner, bear for
me?"
Lord, with loud voice we answer
thee,
Accept our service in return,
And save us lest in hell we burn.
25 We, through thy death, to thee
have sued.

- For God in heaven we shed our
blood:
This for our sins will work to good.
Blessed Maria! Mother! Queen!
Through thy loved Son's redeeming
mean
30 Be all our wants to thee portrayed.
Aid us, Mother! spotless Maid!
Trembles the earth, the rocks are
rent,*
Fond heart of mine, thou must re-
lent.
Tears from our sorrowing eyes we
weep;
35 Therefore so firm our faith we keep
With all our hearts—with all our
senses.
Christ bore his pangs for our of-
fences.
Ply well the scourge for Jesus'
sake,
And God through Christ your sins
shall take.
40 For love of God abandon sin,
To mend your vicious lives begin,
So shall we his mercy win.
Direful was Maria's pain
When she beheld her dear One slain.
45 Pierced was her soul as with a
dart:
Sinner, let this affect thy heart.

* We hence perceive with what feelings subterraneous thunders were regarded by the people.

- The time draws near
When God in anger shall appear.
Jesus was refreshed with gall:
50 Prostrate crosswise let us fall,
Then with uplifted arms arise,
That God with us may sympathise.
Jesus, by thy titles three,*
From our bondage set us free.
55 Jesus, by thy precious blood,
Save us from the fiery flood.
Lord, our helplessness defend,
And to our aid thy spirit send.
If man and wife their vows should
break
60 God will on such his vengeance
wreak.
Brimstone and pitch, and mingled
gall,
Satan pours on such sinners all.
Truly, the devil's scorn are they:
Therefore, O Lord, thine aid we
pray.
66 Wedlock's an honorable tie
Which God himself doth sanctify.
By this warning, man, abide,
God shall surely punish pride.
Let your precious soul entreat you,
70 Lay down pride lest vengeance meet
you.
I do beseech ye, pride forsake,
So God on us shall pity take.
Christ in heaven, where he com-
mands,
Thus addressed his angel bands:—
75 "Christendom dishonors me,
"Therefore her ruin I decree."
- Then Mary thus implored her son:
"Penance to thee, loved Child, be
done;
"That she repent be mine the care;
80 "Stay then thy wrath, and hear my
prayer."
Ye liars!
Ye that break your sacrament,
Shrive ye thoroughly and repent.
Your heinous sins sincerely rue,
85 So shall the Lord your hearts renew.
Wo! usurer, though thy wealth
abound,
For every ounce thou mak'st a
pound
Shall sink thee to the hell profound.
Ye murd'ers, and ye robbers all,
90 The wrath of God on you shall fall.
Mercy ye ne'er to others show,
None shall ye find; but endless
wo.
Had it not been for our contrition,
All Christendom had met perdition.
95 Satan had bound her in his chain;
Mary hath loosed her bonds again.
Glad news I bring thee, sinful mor-
tal,
In heaven Saint Peter keeps the
portal,
Apply to him with suppliant mien,
100 He bringeth thee before thy Queen.
Benignaut Michael, blessed saint,
Guardian of souls, receive our plaint.
Through thy Almighty Maker's
death,
Preserve us from the hell beneath.

II.

EXAMINATION OF THE JEWS ACCUSED OF POISONING THE
WELLS.†

*Answer from the Castellan of Chillon to the City of Strasburg,
together with a Copy of the Inquisition and Confession of
several Jews confined in the Castle of Chillon on suspicion
of poison. Anno 1348.*

To the honourable the Mayor, Senate, and Citizens of the City of
Strasburg, the Castellan of Chillon, Deputy of the Bailiff of Chab-
lias, sendeth greeting with all due submission and respect.

* For the sake of thy Trinity.

† An appearance of justice having been given to all later persecutions by these
proceedings, they deserve to be recorded as important historical documents. The
original is in Latin, but we have preferred the German translation in Königsho-
ven's Chronicle, p. 1029.

Understanding that you desire to be made acquainted with the confession of the Jews, and the proofs brought forward against them, I certify, by these presents, to you, and each of you that desires to be informed, that they of Berne have had a copy of the inquisition and confession of the Jews who lately resided in the places specified, and who were accused of putting poison into the wells and several other places : as also the most conclusive evidence of the truth of the charge preferred against them. Many Jews were put to the question, others being excused from it, because they confessed, and were brought to trial and burnt. Several Christians, also, who had poison given them by the Jews for the purpose of destroying the Christians, were put on the wheel and tortured. This burning of the Jews and torturing of the said Christians took place in many parts of the county of Savoy. Fare you well."

The Confession made on the 15th day of September, in the year of our Lord 1348, in the Castle of Chillon, by the Jews arrested in Neustadt, on the Charge of Poisoning the Wells, Springs, and other places; also Food, &c., with the Design of destroying and extirpating all Christians.

I. Balavignus, a Jewish physician, inhabitant of Thonon, was arrested at Chillon in consequence of being found in the neighbourhood. He was put for a short time to the rack, and, on being taken down, confessed, after much hesitation, that, about ten weeks before, the Rabbi Jacob of Toledo, who because of a citation, had resided at Chamberi since Easter, sent him, by a Jewish boy, some poison in the mummy of an egg : it was a powder sewed up in a thin leathern pouch accompanied by a letter, commanding him, on penalty of excommunication, and by his required obedience to the law, to throw this poison into the larger and more frequented wells of the town of Thonon, to poison those who drew water there. He was further enjoined not to communicate the circumstance to any person whatever, under the same penalty. In conformity with this command of the Jewish rabbis and doctors of the law, he, Balavignus, distributed the poison in several places, and acknowledged having one evening placed a certain portion under a stone in a spring on the shore at Thonon. He further confessed that the said boy brought various letters of a similar import, addressed to others of his nation, and particularly specified some directed severally to Mossoiet, Banditon, and Samoletto of Neustadt : to Musseo Abramo and Aquetus of Montreantz, Jews residing at Thurn in Vivey ; to Benetonus and his son at St. Moritz ; to Vivianus Jacobus, Aquetus and Sonetus, Jews at Aquani. Several letters of a like nature were sent to Abram and Musset, Jews at Moncheoli ; and the boy told him that he had taken many others to different and distant places, but he did not recollect to whom they were addressed. Balavignus further confessed that, after having put the poison into the spring at Thonon, he had positively forbidden his wife and children to

drink the water, but had not thought fit to assign a reason. He avowed the truth of this statement, and, in the presence of several credible witnesses, swore by his Law, and the Five Books of Moses to every item of his deposition.

On the day following, Balavignus, voluntarily and without torture, ratified the above confession verbatim before many persons of character, and, of his own accord, acknowledged that, on returning one day from Tour near Vivey, he had thrown into a well below Mustrucz, namely that of La Conerayde, a quantity of the poison tied up in a rag, given to him for the purpose by Aquetus of Montreantz, an inhabitant of the said Tour : that he had acquainted Manssiono, and his son Delosaz, residents of Neustadt, with the circumstance of his having done so, and advertised them not to drink of the water. He described the colour of the poison as being red and black.

On the nineteenth day of September, the above-named Balavignus confessed, without torture, that about three weeks after Whitsuntide, a Jew named Mussus told him that he had thrown poison into the well in the custom-house of that place, the property of the Borneller family ; and that he no longer drank the water of this well, but that of the lake. He further deposed that Mussus informed him that he had also laid some of the poison under the stones in the custom-house at Chillon. Search was accordingly made in this well, and the poison found : some of it was given to a Jew by way of trial, and he died in consequence. He also stated that the rabbis had ordered him and other Jews to refrain from drinking of the water for nine days after the poison was infused into it ; and, immediately on having poisoned the waters, he communicated the circumstance to the other Jews. He, Balavignus, confessed that about two months previously, being at Evian, he had some conversation on the subject with a Jew called Jacob, and, among other things, asked him whether he also had received writings and poison, and was answered in the affirmative ; he then questioned him whether he had obeyed the command, and Jacob replied that he had not, but had given the poison to Savetus, a Jew, who had thrown it into the Well de Morer at Evian. Jacob also desired him, Balavignus, to execute the command imposed on him with due caution. He confessed that Aquetus of Montreantz had informed him that he had thrown some of the poison into the well above Tour, the water of which he sometimes drank. He confessed that Samolet had told him that he had laid the poison which he had received in a well, which, however, he refused to name to him. Balavignus, as a physician, further deposed that a person infected by such poison coming in contact with another while in a state of perspiration, infection would be the almost inevitable result ; as might also happen from the breath of an infected person. This fact he believed to be correct, and was confirmed in his opinion by the attestation of many experienced physicians. He also declared that none of his community could exculpate themselves from this

accusation, as the plot was communicated to all ; and that all were guilty of the above charges. Balavignus was conveyed over the lake from Chillon to Clarens, to point out the well into which he confessed having thrown the powder. On landing, he was conducted to the spot ; and, having seen the well, acknowledged that to be the place, saying, "This is the well into which I put the poison." The well was examined in his presence, and the linen cloth in which the poison had been wrapped was found in the waste-pipe by a notary-public named Heinrich Gerhard, in the presence of many persons, and was shown to the said Jew. He acknowledged this to be the linen which had contained the poison, which he described as being of two colours, red and black, but said that he had thrown it into the open well. The linen cloth was taken away and is preserved.

Balavignus, in conclusion, attests the truth of all and every thing as above related. He believes this poison to contain a portion of the basilisk, because he had heard, and felt assured, that the above poison could not be prepared without it.

II. Banditono, a Jew of Neustadt, was, on the fifteenth day of September, subjected for a short time to the torture. After a long interval, he confessed having cast a quantity of poison, about the size of a large nut, given him by Musseus, a Jew, at Tour near Vivey, into the well of Carutet, in order to poison those who drank of it.

The following day, Banditono, voluntarily and without torture, attested the truth of the aforesaid deposition ; and also confessed that the Rabbi Jacob von Pasche, who came from Toledo and had settled at Chamberi, sent him, at Pilliex, by a Jewish servant, some poison about the size of a large nut, together with a letter, directing him to throw the powder into the wells on pain of excommunication. He had therefore thrown the poison, which was sewn up in a leathern bag, into the well of Cercliti de Roch ; further, also, that he saw many other letters in the hands of the servant addressed to different Jews ; that he had also seen the said servant deliver one, on the outside of the upper gate, to Samuletus, the Jew, at Neustadt. He stated, also, that the Jew Massolet had informed him that he had put poison into the well near the bridge at Vivey.

III. The said Manssiono, Jew of Neustadt, was put upon the rack on the fifteenth day of the same month, but refused to admit the above charge, protesting his entire ignorance of the whole matter ; but the day following, he, voluntarily and without any torture, confessed, in the presence of many persons, that he came from Mancheolo one day in last Whitsunweek, in company with a Jew named Provenzal, and, on reaching the well of Chabloz Crüz between Vyona and Mura, the latter said, "You must put some of the poison which I will give you into that well, or wo betide you !" He therefore took a portion of the powder about the bigness of a nut, and did as he was directed. He believed that the

Jews in the neighbourhood of Evian had convened a council among themselves relative to this plot, before Whitsuntide. He further said that Balavignus had informed him of his having poisoned the Well de la Conerayde below Mustruez. He also affirmed his conviction of the culpability of the Jews in this affair, stating that they were fully acquainted with all the particulars, and guilty of the alleged crime.

On the third day of the October following, Manssiono was brought before the commissioners, and did not in the least vary from his former deposition, or deny having put the poison into the said wells.

The above-named Jews, prior to their execution, solemnly swore by their Law to the truth of their several depositions, and declared that all Jews whatsoever, from seven years old and upwards, could not be exempted from the charge of guilt, as all of them were acquainted with the plot, and more or less participators in the crime.

[The seven other examinations scarcely differ from the above, except in the names of the accused, and afford but little variety. We will, therefore, only add a characteristic passage at the conclusion of this document. The whole speaks for itself.]

There still remain numerous proofs and accusations against the above-mentioned Jews : also against Jews and Christians in different parts of the county of Savoy, who have already received the punishment due to their heinous crime ; which, however, I have not at hand, and cannot therefore send you. I must add that all the Jews of Neustadt were burnt according to the just sentence of the law. At Augst, I was present when three Christians were flayed on account of being accessory to the plot of poisoning. Very many Christians were arrested for this crime in various places in this country, especially at Evian, Gebenne, Krusilien and Hochstett, who, at last and in their dying moments, were brought to confess and acknowledge that they had received the poison from the Jews. Of these Christians some have been quartered ; others flayed and afterwards hanged. Certain commissioners have been appointed by the magistrates to enforce judgment against all the Jews ; and I believe that none will escape.

III.

EXTRACTS FROM "A BOKE OR COUNSEILL AGAINST THE DISEASE COMMONLY CALLED THE SWEATE OR SWEATYNG SICKNESSE," MADE BY JOHN CAIUS, DOCTEUR IN' PHY-SICKE.—IMPRINTED AT LONDON. A. D. 1552.

" HETHERTO I haue shewed the beginning, name, nature & signes of this disease : now I will declare the causes, which be ii : infection,
JULY, 1837.

& impure spirites in bodies corrupt by repletions. Infection, by th' aire receiuing euell qualities, distempring not only y^e hete but the hole substance thereof, in putrifieng the same, & that generally ii waies. By the time of the yere vnnatural, and by the nature and site of the soile & region. whereunto maye be put the particular accidentes of this same. By the time of the yere vnnatural, as if winter be hot & drie, somer hot & moist (a fit time for sweates) the spring colde and drye, the fall hot & moist. To this mai be ioyned the euell disposition by constellation, whiche hath a great power & dominion in al erthly thinges. By the site & nature of the soile & region, many wayes. First and specially, by euell mistes & exhalations drawen out of the grounde by the sunne in the heate of the yere, as chanced among the Grekes in the siege of Troy, whereby died firste dogges & mules, after, men in great numbres: & here also in England in this M.D.L.I. yere, the cause of this pestilent sweate, but of dyuers nature. Whiche miste in the countrie wher it began, was sene flie from toun to toun, with suche a stincke in morninges & euenings, that men could scarcely abide it. Then by dampes out of the earth, as out of Galenes Barathrum, or the poetes auernum, or aornum, the dampes wherof be such, that thei kil y^e birdes flieng ouer them. Of like dampes, I heard in the north country in cole pits, whereby the labouring men be streight killed, except before the houre of coming thereof (which thei know by y^e flame of their candle) thei auid the ground. Thirdly by putrefaction or rot in groundes afire great floudes, in carions & in dead men. After great fluddes as happend in y^e time of Gallien the Emperor at Rome, in Achaia & Libia, wher the seas sodeinly did ouerflow y^e cities nigh to y^e same. And in the xi yere of Pelagius, when al the floudes throughe al Italye didde rage, but chieflye Tiberis at Rome, whiche in many places was as highe as the walles of the citie.

In carions or dead bodies, as fortun'd here in Englande upon the sea bankes in the tyme of King Alured or Alfrede (as some Chroni-clers write) but in the time of Ethelred after Sabellicus, by occasion of drowned Locustes cast up by the Sea, which by a wynde were driuen oute of Fraunce thether. This locust is a flie in bigness of a manne's thumbe, in colour broune, in shape somewhat like a gress-hopper, hauing vi fiete, so many wynges, two tieth, & an hedde like a horse, and therefore called in Italy Caualletto, where ouer y^e citie of Padoa, in the yere M.D.XIII. (as I remembre,) I, with manye more did see a swarme of them, whose passage ouer the citie, did laste two hours, in breadth inestimable to euery man there. Here by example to note infection by deadde menne in Warres. either in rotting aboue the ground, as chanced in Athens by theim of Ethiopia, or else in beyng buried ouerly as happend at Bulloigne, in the yere M.D.XIV. the yere afire King Henrye theight had conquered the same, or by long continuance of an hoste in one place, it is more playne by dayly experience, than it needeth to be shewed.

Therefore I will now go to the fourth especial cause of infection,

the pent aier, breaking out of the ground in yearthquakes, as chaunced at Venice in the firste yeare of Andrea Dandulo, then Duke, the xxiv day of Januarye, and xx hour after their computacion. By which infection many died, & many wer borne before their time. The v cause is close & unstirred aire & therefore putrifid or corrupt, out of old welles, holes in y^e ground made for grain, wherof many I did se in & about Pesaro in Italy, by opening them afre a great space, as both those countrimen do confesse & also by example is declared, for y^t manye in opening them unwarely be killed. Out of caues and tombes also, as chaunced first in the country of Babilonia, proceeding afre into Greece, and so to Rome, by occasion that y^e souldiers of themperour Marcus Antoninus, upon hope of money, brake up a golden coffine of Anidius Cassius, spieng a little hole therein, in the temple of Apollo in Selucia, as Ammianus Marcellinus writeth. To these mai be ioyned the particular causes of infection, which I cal the accidentes of the place, augmenting the same. As nigh to dwelling places, merishe & muddy grouncees, puddles or donghilles, sinkes or canales, easing places or carions, deadde ditches or rotten groundes, close aier in houses or ualleis with such like. Thus muche for the firste cause.

The second cause of this Englyshe Ephemera, I said were thimpure spirites in bodies corrupt by repletion. Repletion I cal here, abundance of humores euel & maliciouse, from long time by little and little gathered by euel diete, remaining in the bodye, coming either by to moche meate, or by euel meate in qualitie, as infected frutes, meates of euel juse or nutriment: or both ioyntly. To such spirites when the aire infective cometh consonant, then be thei distempered, corrupted, sore handled, & oppressed, then nature is forced & the disease engendred. But while I doc declare these impure spirites to be one cause, I must remoue your myndes from spirites to humours, for that the spirites be fedde of the finest partes therof, & afre bringe you againe to spirites where I toke you. And for so muche as I haue not yet forgotten to whome I write, in this declaration I will leaue apart al learned & subtil reasons, as here void & vnmiete & only vse suche as be most euident to whom I write, & easiest to be understanden of the same: and at ones therewith shew also why it haunteth us Englishmen more then other nations. Therefore I passe ouer the vngentle sauoure or smell of the sweate, grosenes, colour, and other qualities of the same, the quantitie, the daunger in stopping, the maner in coming furthe redily, or hardly, hot or cold, the notes in the excrementes, the state longer or sorer, with suche others, which mai be tokens of corrupt humours & spirites, & onli wil stand vpon III reasons declaring y^e same swet by gret repletion to be in vs not otherwise for al y^e euel aire apt to this disease, more then other nations. For as herafre I wil shew, & Galen confirmeth, our bodies cannot suffre any thing or hurt by corrupt & infectiue causes, except ther be in them a certein mater prepared apt & like to receiue it, els if one were sick, al shuld be sick, if in this countri, in al countries wher

the infection came, which thing we se doth not chance. For touching the first reason, we se this sweting sicknes or pestilent Ephemera to be oft in England, but neuer entresth Scotland, (except the borders) altho thei both be jointly within the compas of on sea. The same beginning here, hath assailed Brabant & the costes nigh to it, but neuer passed Germany, where ones it was in like facion as here, with great mortalitie, in the yere M.D.XXIX. Cause wherof none other these is naturall, then the euill diet of these thre countreyes whiche destroy more meates and drynckes withoute al ordre, conuenient time, reason, or necessitie, then either Scotlande, or all other countries vnder the sunne, to the greate annoiance of their owne bodies and wittes, hinderance of them which haue nede, and great dearth and scarcitie in their common welthes. Wherefore if Esculapius the inuentour of Phisike, y^e sauer of men from death, & restorer to life, should returne again into this world, he could not saue these sortes of men, hauing so moche sweatyng stuffe, so many euill humoures laid by in store, from this displeasante, fearful, & pestilent disease: except thei would learne a new lesson, & folowe a new trade. For otherwise, neither the auoidyng of this countrie (the seconde reason) nor fleying into others, (a commune refuge in other diseases) wyll preserue us Englishe men, as in this laste sweate is by experience well proued in Cales, Antwerpe, and other places of Brabant, wher only our contrimen ware sicke and none others, except one or ii. others of thenglishe diete, which is also to be noted. (Fol. 13 to 17.)

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The thirde and laste season is, y^t they which had thys sweat sore with perille or death, were either men of welthe, ease & welfare, or of the poorer sorte such as wer idle persones, good ale drinkers, and Tavernhaunters. For these, by y^e great welfare of the one sorte, and large drinkyng of thother, heped up in their bodies moche euill matter: by their ease and idlenes, coulde not waste and consume it. A confirmacion of this is, that the laborouse and thinne dieted people, either had it not, because they dyd eate but litle to make the matter: or with no greate grefe and danger, because they laboured out moche therof. Wherefore upon small cause, necessarily must folowe a small effecte. All these reasones go to this ende, that persones of all countries of moderate and good diete, escape thys Englishe Ephemera, and those be onely vexed therewith, whiche be of immoderate and euill diete. But why? for the euill humores and corrupte aier alone? No. for then the pestilence and not the swet should rise. For what then? for y^e impure spirites corrupte in theimselues and by the infectiue aier. Why so? for that of impure and corrupte humores, whether thei be blode or others, can rise none other then impure spirites. For euery thyng is such as that wherof it commeth. Now, that of the beste and fineste of the blode, yea in corrupte bodies (whyche beste is nought) these spirites be ingendred and fedde I before expressed. Therfor who wyl haue them pure and cleane, and himselfe

free from sweat, muste kepe a pure and eleane diete, and then he shall be sure. (Fol. 20 to 21.)

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Who that lustethe to lyue in quiete suretie, out of the sodaine danger of this Englishe Ephemera, he aboue all thynges, of litle and good muste eate & spare not. the last parte wherof wyl please well (I doubt not) us Englishe men: the firste I thinke neuer a deale. Yet it must please them that intende to lyue without the reeche of this disease. So doyng they shall easely escape it. For of that is good, can be engendred no cuill: of that is litle, can be gather no great store. Therfore helthful must he nedes be and free from this disease, that ysethe this kinde of liuyng and maner in dietyng. An example hereof may the wise man Socrates be, which by this sorte of diete escaped a sore pestilence in Athenes, neuer fleyng ne kepyng close him selfe from the same. Truly who will lyue accordyng to nature and not to lust, may with this diete be well contented. For nature is pleased with a litle nor seketh other then that the mind voide of cares and feares may be in quiete merily, and the body voide of grefe, maye be in life swetly, as Lucretius writeth. Here at large to ronne out vntill my breth wer spent, as vpon a common place, against y^e intemperance or excessive diete of Englande, thinecommodities & displeasures of the same many waies: and contrarie, in commendation of meane diete and temperance (called of Plato sophrosyne, for that it conserueth wisdome) and the thousande commodities thereof, both for helthe, welthe, witte and longe life, well I migth, & lose my labour: such be our Englishe facions rather then reasones. But for that I purpose neither to wright a longe worke but a shorte counsell, nor to wery the reders with that they luste not to here, I will lette that passe, and moue them that desire further to knowe my mynde therein, to remember that I sayd before, of litle & good eate and spare, not, wherby they shall easely pereciue my meanyng. I therefore go furth with my diete, wherin my counsell is, that the meates be helthfull, and holsonly kylled, swetly saued, and wel prepared in rostyng, sethyng baking, & so furth. The bread of swet corne, wel leuened, & so baked. The drinke of swete malte and good water kyndly brued, without other drosse now a daies used. No wine in all the tyme of sweatyng, excepte to suche whose sicknese require it for medicin, for fere of inflamynge & openynge, nor except y^e halfe be wel soden water. In other tymes old, pure & smal. Wishing for the better execution hereof & ouersight of good and helthsome victalles, ther wer appointed certein masters of helth in euery citie and toun, as there is in Italie, whiche for the good order in all thynges, maye be in al places an example. The meates I would to be vcale, muttone, kidde, olde lambe, chikyn, capone, henne, cocke, pertriche, phesane, felfare, smal birdes, pigeon, yong pecockes, whose fleshe by a certeine natural & secrete propertie neuer putrefie, as hath bene proued. Conies, porke of meane age, neither fatte nor leane, the skynne taken awaye, roste

& eaten colde. Tartes of prunes, gelies of veale & capone. Yong befe in this case a little poudered is not to be dispraised, nor new egges & good milke. Butter in a mornyng with sage and rewe fastyng in the sweatyng time is a good preseruatiue, beside that it nourisheth. Crabbes, crauesses, pierel, perehe ruffe, gogion, lampreis out of grauelly riuers, smeltes, dace, barbell, gornerd, whityng, soles, flunders, plaice, millers thumbes, minues w^h such others, sodde in water & vinegre w^h rosemary, time, sage, & hole maces, & serued hote. Yea swete salte fishe & linge, for the saltes sake wastynge y^e humores therof, which in many freshe fishes remaine, maye be allowed well watered to them that haue non other & wel lyke it. Nor all fishes, no more then al fleshes be so euill as they be taken for: as is wel declared in physik, & approued by the olde and wise romaines moche in their fisshes, lusty chartusianes neuer in fleshes, & helthful poore people more in fishe than fleshe. But we are now a daies so vnwisely fine, and womanly delicate, that we may in no wise touch a fisshe. The olde manly hardnes, stoute courage, and painfulness of Englande is vtterly driuen awaye, in the stede wherof, men now a daies receiue womanlines & become nice, not able to withstande a blaste of wynde, or resiste a poore fisshe. And children be so brought up, that if they be not all daie by the fire with a toste and butrie, and in their furies, they be streight sieke.

Sauces to metes I appoint firste aboue all thynges good appetite, and next Oliues, capers, juse of lemons, Barberies, Pomegranetes, Orenge and Sorel, veriuse and vineigre, iuse of unripe Grapes, thepes or Goseberies. After mete, quince, or marmalade, Pomgranates, Orenge sliced eaten with Suger, Succate of the pilles or barks therof, and of pomecitres, olde apples and peres, Brunes, Reisons, Dates and Nuttes. Figges also, so they be taken before diner, els no frutes of that yere, nor rawe herbes or rotes in sallattes, for that in suche times they be suspected to be partakers also of the enfeeted aire. (Fol. 21 to 24.)

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I remytte you to the discretion of a learned manne in phisike, who maye judge what is to be done, & how, according to the present estate of youre bodies, nature, eustome, & property, age, strength, delyghte and qualitie, tyme of the yeare, with other circumstaunces, & thereafter to geue the quantitie, & make diuersitie of hys medicine. Otherwise loke not to receiue by this booke that good which I entend, but that euil which by your owne folly you vindiscretelye bring. For good counseil may be abused. And for me to write of euery particular estate and ease, whiche be so manye as there be menne, were so great almost a busines, as to numbre the sandes in the sea. Therefore seke you out a good Phisicien and knowen to haue skille, and at the leaste be so good to your bodies, as you are to your hosen or shoes, for the wel making or mending wherof, I doubte not but you wil diligently searche out who is knowen to be the best hosier or shoemaker in the place where you

dwell : and flie the vnlearned as a pestilence in a comune wealth. As simple women, carpenters, pewterers, brasiers, sopeballe-sellers, pulters, hostellers, painters, apotecaries (otherwise then for their drogges,) auaunters themselues to come from Pole, Constantinople, Italie, Almaine, Spaine, Fraunce, Grece and Turkie, Jude, Egypt or Jury : from y^e seruice of Emperoures, kinges & quienes, promising helpe of al diseases, yea vncurable, with one or twoo drinckes, by waters sixe monethes in continuall distillinge, by Aurum potable, or quintessence, by drynckes of great and hygh prices, as though thei were made of the sunne, moone, or sterres, by blessinges and Blowinges, Hipocriticall prayenges, and foolysh smokynges of shirtes Smockes and kerechieffes, wyth suche others theire phantasies, and mockeryes, meaninge nothinge els but to abuse your light belieue, and scorne you behind your backes with their medicines (so filthie, that I am ashamed to name them) for your single wit and simple belief, in trusting them most, whiche you know not at al, and understand least : like to them whiche thinke, farre foules haue faire fethers, althoughe thei be neuer so euell fauoured & foule : as though there coulede not be so conning an Englishman, as a foolish running stranger, (of others I speake not) or so perfect helth by honest learning, as by deceiptfull ignorance. For in the erreure of these vnlearned reasteth the losse of youre honest estimation, diere bloudde, precious spirites, and swiete lyfe, the thyng of most estimation and price in this worlde, next vnto the immortal soule.

For consuming of euell matter within, and for making our bodies lustye, galiard, & helthful, I do not a litle commend exercise, whiche in vs Englishe men I allowe quick, and liuishe : as to runne after houndes and haukes, to shote, wrastle, play at Tennes and weapons, tosse the winde balle, skirmishe at base (an exercise for a gentlemanne, much vsed among the Italianes) and vaughting vpon an horse. Bowling, a good exercise for women : castinge of the barre and camping, I accompt rather a laming of legges, then an exercise. Yet I vtterly reprove them not, if the hurt may be auoyded. For these a conueniente tyme is, before meate : due measure, reasonable sweatinge, in al times of the year, sauing in the sweatinge tyme. In the whiche I allow rather quietnesse then exercise, for opening the body, in suche persons specially as be liberally & freely brought up. Others, except sitting artificers, haue their exercises by daily labours in their occupations, to whom nothing niedeth but solace onely, a thing conuenient for enery bodye that lusteth to live in helth. For els as non other thing, so not healthe canne be longe durable.

Thus I speake of solace, that I meane not Idlennesse, wisshing alwayes no man to be idle, but to be occupied in some honest kinde of thing necessary in a commonwelth. For I accompt them not worthie meate and drink in a commonwelth, y^t be not good for some purpose or seruice therin, but take them rather as burdennes vnprofitable and heauye to the yearth, men borne to fille a nombre only, and wast the frutes which therthe doeth geue, willing soner to fiede the Lacedemonians old & croked asse, whiche labored for the

liuing so long as it coulde for age, then suche an idle Englishe manne. If the honestye and profite of honeste labour and exercise, conseruation of healthe, preseruacion from sickenesse, maintenaunce of lyfe, advancement, safety from shamefull deathes, defence from beggerye, dyspleasures by idlenesse, shamefulle diseases by the same, hatefulle vices, and punishmente of the immortalle soule canne not moue vs to reasonable laboure and exercise, and to be profitable membres of the commune welthe, let at the least shame moue vs, seying that other country menne, of nought, by their owne witte, diligence, labour and actiuitie, can picke oute of a east bone, a wrethen strawe, a lyghte fether, or an hard stone, an honeste lyuinge : Nor ye shall euer heare theym say, alas master, I haue non occupacion, I must either begge or steale. For they can finde other meanes betwene these two. And for so muche as in the case that nowe is, miserable persons are to be relieued in a common welth, I would wisse for not fauouring the idle, the discretion of Marc. Cicero the romaine were vsed in healping them : who wolde compassion should be shewed vpon them whome necessitie compelled to do or make a faute : & no compassion vpon them, in whome a faute made necessitie. A faute maketh necessitie, in this case of begging, in them, whye he might labour and serve & wil not for idlenes : and therefore not to be pitied, but rather to be punished. Necessitie maketh a fault in them, whiche wold labor and serue, but cannot for age, impotency, or sickenes, and therefore to be pitied and relieued. But to auoyde punishmente and to shew the waye to amendmente, I woulde again wishe, y^t for so much as we be so euell disposed of ourselues to our own profites and comodities without help, this old law were renued, which forbiddeth the nedy & impotent parentes, to be releued of those their welthi chyl-dren, that by theym or their meanes were not broughte vppe, eyther in good learning and Science, or honeste occupation. For so is a man withoute science, as a realme withoute a kyng. (Fol. 27 to 30.)

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Al these thinges ducly obserued, and well executed, whiche before I haue for preseruacion mencioned, if more ouer we can sette aparte al affections, as fretting cares and thoughtes, dolefull or sorrowfull imaginations, vaine feares, folysh loues, gnawing hates, and geue oure selues to lve quietly, friendlie & merily one with an outhier, as men were wont to do in the old world, when this Countrie was called merye Englande, and euery man to medle in his own matters, thinking them sufficient, as thei do in Italie, and auoyde malyce and dissencion, the destruction of commune wealthes, and priuate houses : I doubt not but we shall preserve our selues, both from this sweatinge syckenesse, and other diseases also not here purposed to be spoken of. (Fol. 31.)

THE
EPIDEMICS OF THE MIDDLE
AGES:

FROM THE GERMAN OF

I. F. C. HECKER, M.D.

PROFESSOR AT FREDERICK WILLIAM'S UNIVERSITY AT BERLIN,
AND MEMBER OF VARIOUS LEARNED SOCIETIES IN BERLIN, BONN, COPENHAGEN,
ERLANGEN, HANAU, LONDON, LYONS, METZ, NAPLES, NEW YORK,
PHILADELPHIA, AND ZURICH.

NO. II.

The Dancing Mania.

TRANSLATED BY

B. G. BABINGTON, M.D. F.R.S.

PHILADELPHIA:
HASWELL, BARRINGTON, AND HASWELL.

1837.

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TRANSLATOR'S PREFACE.

DR. HECKER'S account of the "Black Death," having, in its English translation, met with a favourable reception, I am led to believe that the "Dancing Mania," a similar production by the same able writer, will also prove acceptable. Should this be the case, it is my intention to complete the series by translating the history of the "Sweating Sickness," the only remaining epidemic considered by our author to belong to the Middle Ages.

The mind and the body reciprocally and mysteriously affect each other, and the maladies which are the subject of these pages, are so intimately connected with the disordered state of both, that it is often difficult to determine on which they more essentially depend, or which they more seriously influence.

The physician will probably be led by their contemplation to admit that the imagination has a larger share in the production of disease than he might, without a knowledge of the striking facts here recorded, have supposed to be within the limits of possibility. He has, no doubt, already observed, that joy will affect the circulation, grief the digestion, that anger will heat the frame as perniciously as ardent spirits, and that fear will chill it as certainly as ice; but he may not have carried his observation to the extent of perceiving, that not only single and transient effects, but specific diseases are produced through the agency of mental impressions, and he may therefore still be surprised to find that the dances of St. John and of St. Vitus, as they formerly spread by sympathy from city to city, gave rise to the same deviations from bodily health, in all the individuals whom they attacked; that Tarantism was the same disease, whether medically or morally considered, all over Italy; and that the "Lycanthropia" of the past, and the "Leaping Ague" of the present times, have each its respective train of peculiar symptoms.

The moralist will view these records of human frailty in a differ-

ent light ; he will examine the state of society which favoured the propagation of such maladies ; he will inquire how far they have been the offspring of the ages in which they appeared, and although he may not be disposed to think with our author, that they can never return, he will at least deduce from the facts here laid before him, that they originate in those minds, whether ignorant or ill educated, in which the imagination is permitted to usurp the power of sober sense, and the ideal is allowed to occupy the thoughts to the exclusion of the substantial.

That such minds are most frequently to be met with in an age of ignorance, we should naturally suppose, and we are borne out in that supposition by the fact, that these diseases have been declining in proportion to the advance of knowledge ; but credulity and enthusiasm are not incompatible with a high degree of civilization : and if, among the educated classes, the female sex is more sentimental than the male, and the affluent are more credulous than those who are dependent on their own exertions for their support, it is to be accounted for by the fact, that they usually devote more leisure to the pleasurable contemplation of works of imagination, and are less imperatively called on to improve their judgment by the dry study of facts, and the experience acquired in the serious business of life. But there is no class, even in this age of boasted reason, wholly exempt from the baneful influence of fanaticism ; and instances are not wanting, in our own days, and in this very capital, to prove, that disorders (how can we more charitably designate them?) much resembling those described in the following pages, may make their appearance among people who have had all the advantages of an enlightened education, and every opportunity of enlarging their minds by a free intercourse with refined society.

I thus venture to hope, that by bestowing a leisure hour on this small portion of medical history, the physician may enlarge his knowledge of disease, and the moralist may gather a hint for the intellectual improvement of his fellow-men. The author has, however, a more extended object in view—the histories of particular epidemics are with him but the data from which we are to deduce the general laws that govern human health in the aggregate. Whether there be such an *entity* as collective or organic life, and whether, as a consequence, there exist general laws which regulate its healthy or morbid condition, I do not here undertake to determine ; but the notion is peculiar, and in order that it may be more fully exposed to the reader, I have translated, as an introduction to the present

volume, an Appeal which Dr. Hecker has made to the medical profession of his own country for assistance in his undertaking. If, in the course of the remarks contained in this address, he has been somewhat severe in his censure of the neglect, both in this country and in France, of the study of Medical History, I freely confess myself to be one of those who are more anxious to profit by his castigation than to dispute its justice.

I have added a few Notes, which I trust will be found not inapplicable. They consist chiefly of parallel accounts in illustration of what is set forth in the text ; and with the same view I have thrown together in No. V. of the Appendix, some Histories of Local Epidemics, and have referred to some single cases, which seem to me to have a peculiar interest in connection with the subject of this work, and to render it, on the whole, more complete.

P R E F A C E .

THE diseases which form the subject of the present investigation afford a deep insight into the workings of the human mind in a state of society. They are a portion of history, and will never return in the form in which they are there recorded ; but they expose a vulnerable part of man—the instinet of imitation—and are therefore very nearly connected with human life in the aggregate. It appeared worth while to describe diseases which are propagated on the beams of light—on the wings of thought, which convulse the mind by the excitement of the senses, and wonderfully affect the nerves, the media of its will and of its feelings. It seemed worth while to attempt to place these disorders between the epidemics of a less refined origin, which affect the body more than the soul, and all those passions and emotions which border on the vast domain of disease, ready at every moment to pass the boundary. Should we be able to deduce from

the grave facts of history here developed, a convincing proof that the human race, amidst the creation which surrounds it, moves in body and soul as an individual whole, the Author might hope that he had approached nearer to his ideal of a grand comprehension of diseases in time and space, and be, encouraged by the participation of contemporaries, zealous in the search of truth, to proceed along the path which he has already entered, in prosecuting the investigation.

ADDRESS
TO THE
PHYSICIANS OF GERMANY.

By I. F. C. HECKER.

It has long been my earnest desire to address my honoured Colleagues, especially those with whom I feel myself connected by congeniality of sentiment, in order to impress on them a subject in which science is deeply interested, and which, conformably to the plain declaration of Nature herself, is one of the most exalted and important which can be submitted to the researches of the learned. I mean the investigation of Epidemic Diseases, on a scale commensurate with the extent of our exertions in other departments, and worthy of the age in which we live. It is, with justice, required of medical men, since their sole business is with life, that they should regard it in the right point of view. They are expected to have a perception of life, as it exists individually and collectively : in the former, to bear in mind the general system of creation ; in the latter, to demonstrate the connection and signification of the individual phenomenon, to discern the one by the aid of the other, and thus to penetrate, with becoming reverence, into the sanctuary of cosmical and microcosmical science. This expectation is not extravagant, and the truth of the principles which the medical explorer of nature deduces from it, is so obvious that it seems scarcely possible that any doubts should be entertained on the subject.

Yet we may ask, Has the medical science of our days, with all the splendour which surrounds it, with the perfection of which it boasts, satisfied this demand? This question we are obliged to answer in the negative.

Let us consider only the doctrine of diseases, which has been cultivated since the commencement of the scientific study. It has grown up amid the illumination of knowledge and the gloom of ignorance ;

it has been nurtured by the storms of centuries ; its monuments of ancient and modern times cannot be numbered, and it speaks clearly to the initiated, in the language of all civilized nations. Yet, hitherto, it has given an account only of individual diseases, so far as the human mind can discern their nature. In this it has succeeded admirably, and its success becomes every year greater and more extensive.

But if we extend our inquiries to the Diseases of Nations, and of the whole human race, science is mute, as if it were not her province to take cognizance of them, and shows us only an immeasurable and unexplored country, which many suppose to be merely a barren desert, because no one to whose voice they are wont to listen, gives any information respecting it. Small is the number of those who have traversed it ; often have they arrested their steps, filled with admiration at striking phenomena ; have beheld inexhaustible mines waiting only for the hand of the labourer, and, from contemplating the development of collective organic life, which science no where else displays to them on so magnificent a scale, have experienced all the sacred joy of the naturalist to whom a higher source of knowledge has been opened. Yet could they not make themselves heard in the noisy tumult of the markets, and still less answer the innumerable questions directed to them by many, as from one mouth, not indeed to inquire after the truth, but to obtain a confirmation of an anciently received opinion, which originated in the fifth century before our æra.

Hence it is, that the doctrine of Epidemics, surrounded by the other flourishing branches of medicine, remains alone unfruitful—we might almost say stunted in its growth. For, to the weighty opinions of Hippocrates, to the doctrines of Fracastoro which contain the experience of the much-tried Middle Ages, and lastly to the observations of Sydenham, only trifling and isolated facts have been added. Beyond these facts there exist, even up to the present times, only assumptions which might, long since, have been reduced to their original nothingness, had that serious spirit of inquiry prevailed which comprehends space and penetrates ages.

No epidemic ever prevailed during which the need of more accurate information was not felt, and during which the wish of the learned was not loudly expressed, to become acquainted with the secret springs of such stupendous engines of destruction. Was the disease of a new character?—the spirit of inquiry was roused among physicians ; nor were the most eminent of them ever deficient either in courage or in zeal for investigation. When the glandular plague first made its appearance as an universal epidemic, whilst the more pusillanimous, haunted by visionary fears shut themselves up in their closets, some physicians at Constantinople, astonished at the phenomenon, opened the boils of the deceased. The like has occurred both in ancient and modern times, not without favourable results for science ; nay, more matured views excited an eager desire to become acquainted with similar or still greater visita-

tions among the ancients; but as later ages have always been fond of referring to Grecian antiquity, the learned of those times, from a partial and meagre predilection, were contented with the descriptions of Thucydides, even where nature had revealed, in infinite diversity, the workings of her powers.

These researches, if indeed they deserved that name, were never scientific or comprehensive. They never seized but upon a part, and no sooner had the mortality ceased, than the scarcely awakened zeal relapsed into its former indifference to the interesting phenomena of nature, in the same way as abstemiousness, which had ever been practised during epidemics, only as a constrained virtue, gave place, as soon as the danger was over to unbridled indulgence. This inconstancy might almost bring to our mind the pious Byzantines who, on the shock of an earthquake, in 529, which appeared as the prognostic of the great epidemic, prostrated themselves before their altars by thousands, and sought to excel each other in Christian self-denial and benevolence; but no sooner did they feel the ground firm beneath their feet, than they again abandoned themselves, without remorse, to all the vices of the metropolis. May I be pardoned for this comparison of scientific zeal with other human excitements? Alas! even this is a virtue which few practise, for its own sake, and which, with the multitude, stands quite as much in need as any other, of the incentives of fear and reward.

But we are constrained to acknowledge that among our medical predecessors, these incentives were scarcely ever sufficiently powerful to induce them to leave us circumstantial and scientific accounts of contemporary epidemics, which nevertheless, have, even in historical times afflicted in almost numberless visitations the whole human race. Still less did it occur to them to take a more exalted stand, whence they could comprehend at one view, these stupendous phenomena of organic collective life, in which the whole spirit of humanity powerfully and wonderfully moves, and thus to regard them as one whole, in which higher laws of Nature, uniting together the utmost diversity of individual parts, might be anticipated or perceived.

Here a wide, and almost unfathomable chasm occurs in the science of medicine, which, in this age of mature judgment and multifarious learning cannot, as formerly, be overlooked. History alone can fill it up; she alone can give to the Doctrine of Diseases that importance without which its application is limited to occurrences of the moment, whereas the development of the phenomena of life, during extensive periods, is no less a problem of research for the philosopher, who makes the boundless science of Nature his study, than the revolutions of the planet on which we move. In this region of inquiry the very stones have a language, and the inscriptions are yet legible which, before the creation of man, were engraved by organic life, in wondrous forms on eternal tablets. Exalted ideas of the monuments of primæval antiquity are here excited, and the forms of the antemundane ways and creations of Nature are conjured up from

the inmost bosom of the earth, in order to throw their bright beaming light upon the surface of the present.

Medicine extends not so far. The remains of animals make us indeed acquainted, even now, with diseases to which the brute creation was subject long ere the waters overflowed, and the mountains sunk down; but the investigation which is our more immediate object, scarcely reaches to the beginning of human culture. Records of remote and of proximate eras, lie before us in rich abundance. They speak of the deviations and destructions of human life, of exterminated and newly-formed nations; they lay before us stupendous facts, which we are called upon to recognise and expound in order to solve this exalted problem. If physicians cannot boast of having unrolled these records with the avidity of true explorers of Nature, they may find some excuse in the nature of the inquiry—for the characters are dead, and the spirits of which they are the magic symbols, manifest themselves only to him who knows how to adjure them. Epidemics leave no coporeal traces, whence their history is perhaps more intellectual than the science of the Geologist, who, on his side, possesses the advantage of treating on subjects which strike the senses, and are therefore more attractive,—such as the impressions of planets no longer extant, and the skeletons of lost races of animals. This, however, does not entirely exculpate us from the charge of neglecting our science, in a quarter where the most important facts are to be unveiled. It is high time to make up for what has been left unaccomplished, if we would not remain idle and mean-spirited in the rear of other naturalists.

I was animated by these and similar reflections, and excited too by passing events, when I undertook to write the history of the “Black Death.” With some anxiety, I sent this book into the world, for it was scarcely to be expected that it would be every where received with indulgence, since it belonged to a hitherto unknown department of historical research, the utility of which might not be obvious in our practical times. Yet I soon received encouragement, not only from learned friends, but also from other men of distinguished merit, on whose judgment I placed great reliance, and thus I was led to hope that it was not in vain, and without some advantage to science, that I had unveiled the dismal picture of a long departed age.

This work I have followed up by a treatise on a nervous disorder, which, for the first time, appeared in the same century, as an epidemic, with symptoms that can be accounted for only by the spirit of the Middle Ages, symptoms which, in the manner of the diffusion of the disease among thousands of people, and of its propagation for more than two centuries, exercised a demoniacal influence on the human race, yet in close, though uncongenial alliance, with kindlier feelings. I have prepared materials for various other subjects, so far as the resources at my disposal extend, and I may hope, if circumstances prove favourable, to complete by degrees, the history of a more extensive series of Epidemics on the same plan as the “Black Death,” and the “Dancing Mania.”

Amid the accumulated materials which past ages afford, the powers and the life of one individual, even with the aid of previous study, are insufficient to complete a comprehensive history of Epidemics. The zealous activity of many must be exerted if we would speedily possess a work which is so much wanted, in order that we may not encounter new epidemics with culpable ignorance of analogous phenomena. How often has it appeared on the breaking out of epidemics, as if the experience of so many centuries had been accumulated in vain. Men gazed at the phenomena with astonishment, and even before they had a just perception of their nature, pronounced their opinions, which, as they were divided into strongly opposed parties, they defended with all the ardour of zealots, wholly unconscious of the majesty of all-governing nature. In the descriptive branches of natural history, a person would infallibly expose himself to the severest censure, who should attempt to describe some hitherto unknown natural production, whether animal or vegetable, if he were ignorant of the allied genera and species, and perhaps neither a botanist nor zoologist; this, however, was but too frequently the case with epidemics, and men were insensible to the justest reproof. Thus it has ever been, and for this reason we cannot apply to ourselves in this department, the significant words of Bacon, that we are the ancients, and our fore-fathers the moderns, for we are equally remote with them, from a scientific and comprehensive knowledge of epidemics. This might, and ought to be otherwise, in an age, which, in other respects, may, with justice, boast of a rich diversity of knowledge, and of a rapid progress in the natural sciences.

If in the form of an address to the physicians of Germany, I express the wish to see such a melancholy state of things remedied, the nature of the subject requires that, with the exception of the still prevailing Cholera, remarkable universal epidemics should be selected for investigation. They form the grand epochs, according to which those epidemics which are less extensive, but not, on that account, less worthy of observation, naturally range themselves. Far be it from me to recommend any fixed series, or even the plan and method to be pursued in treating the subject. It would, perhaps, be, on the whole, most advantageous, if my honoured Colleagues, who attend to this request, were to commence with those epidemics for which they possess complete materials, and that entirely according to their own plan without adopting any model for imitation, for in this manner simple historical truth will be best elicited. Should it, however, be found impracticable to furnish historical descriptions of entire epidemics, a task often attended with difficulties, interesting fragments of all kinds, for which there are rich treasures in MSS. and scarce works in various places, would be no less welcome and useful towards the great object of preparing a collective history of epidemics.

Up to the present moment, it might almost seem that the most essential preliminaries are wanting for the accomplishment of such an under-

taking. The study of medical history is every where at a low ebb ;— in France and England scarcely a trace remains, to the most serious detriment of the whole domain of medicine; in Germany too, there are but few who suspect what inexhaustible stores of instructive truth are lying dormant within their power ; they may, perhaps, class them among theoretical doctrines, and commend the laborious investigation of them without being willing to recognise their spirit. None of the Universities of Germany, whose business it ought to be to provide, in this respect, for the prosperity of the inheritance committed to their charge, can boast a Professor's chair for the History of Medicine ; nay, in many, it is so entirely unknown, that it is not even regarded as an object of secondary importance, so that it is to be apprehended that the fame of German erudition, may, at least in medicine, gradually vanish, and our medical knowledge become, as practicable indeed, but at the same time, as mechanical, and as defective, as that of France and England. Even those noble institutions, the Academies, in which the spirit of the eighteenth century still lingers, and whose more peculiar province it is to explore the rich pages of science, have not entered upon the history of Epidemics, and by their silence have encouraged the unfounded and injurious supposition, that this field is desolate and unfruitful.

All these obstacles are indeed great, but to determined and persevering exertion they are not insuperable ; and, though we cannot conceal them from ourselves, we should not allow them to daunt our spirit. There is, in Germany, a sufficiency of intellectual power to overcome them ; let this power be combined, and exert itself in active co-operation. Sooner or later a new road must be opened for Medical Science. Should the time not yet have arrived, I have at least endeavoured to discharge my duty, by attempting to point out its future direction.

I.—DANCING MANIA

IN

GERMANY AND THE NETHERLANDS.

1.—ST. JOHN'S DANCE.

THE effects of the *Black Death* had not yet subsided, and the graves of millions of its victims were scarcely closed, when a strange delusion arose in Germany, which took possession of the minds of men, and, in spite of the divinity of our nature, hurried away body and soul into the magic circle of hellish superstition. It was a convulsion which in the most extraordinary manner infuriated the human frame, and excited the astonishment of contemporaries for more than two centuries, since which time it has never reappeared. It was called the dance of St. John or of St. Vitus, on account of the Bacchantic leaps by which it was characterized, and which gave to those affected, whilst performing their wild dance, and screaming and foaming with fury, all the appearance of persons possessed. It did not remain confined to particular localities, but was propagated by the sight of the sufferers, like a demoniacal epidemic, over the whole of Germany, and the neighbouring countries to the north-west, which were already prepared for its reception by the prevailing opinions of the times.

So early as the year 1374, assemblages of men and women were seen at Aix-la-Chapelle who had come out of Germany, and who, united by one common delusion, exhibited to the public both in the streets and in the churches the following strange spectacle.* They formed circles hand in hand, and appearing to have lost all control over their senses, continued dancing, regardless of the bystanders, for hours together, in wild delirium, until at length they fell to the ground in a state of exhaustion. They then complained of extreme

* *Odor Raynald*, Annal. Ecclesiastic. A. 1374. Lucæ 1752. fol. Tom. VII. p. 252.

oppression, and groaned as if in the agonies of death, until they were swathed in clothes bound tightly round their waists, on which they again recovered, and remained free from complaint until the next attack. This practice of swarthing was resorted to on account of the tympany which followed these spasmodic ravings, but patients were frequently relieved in a less artificial manner, by thumping and trampling upon the parts affected. While dancing they neither saw nor heard, being insensible to external impressions through the senses, but were haunted by visions, their fancies conjuring up spirits whose names* they shrieked out; and some of them afterwards asserted that they felt as if they had been immersed in a stream of blood, which obliged them to leap so high.† Others, during the paroxysm saw the heavens open and the Saviour enthroned with the Virgin Mary, as indeed the religious notions of the age were strangely and variously reflected in their imaginations.‡

Where the disease was completely developed, the attack commenced with epileptic convulsions§. Those affected fell to the ground senseless, panting and labouring for breath. They foamed at the mouth, and suddenly springing up began their dance amidst strange contortions. Yet the malady doubtless made its appearance very variously, and was modified by temporary or local circumstances, whereof non-medical contemporaries but imperfectly noted the essential particulars, accustomed as they were to confound their observation of natural events with their notions of the world of spirits.

It was but a few months ere this demoniacal disease had spread over the neighbouring Netherlands from Aix-la-Chapelle where it appeared in July.|| In Liege, Utrecht, Tongres, and many other towns of Belgium, the dancers appeared with garlands in their hair, and their waists girt with cloths, that they might, as soon as the

* *John Hier's* ample Catalogue of Spirits gives no information on this point. *Pseudomonarchia dæmonum. Opera omnia*, Amstelod. 1660. 4to. p. 649.—*Raynald* mentions the word *Frisches* as the name of a spirit; but this mistake is easily accounted for by his ignorance of the language. For according to the *Chronicle of Cologne*, the St. John's dancers sang during their paroxysm: "Here Sent Johan, so, so, *irisch* ind vro, here sent Johan." St. John so, so, brisk and cheerful, St. John. *Die Cronica van der hilliger Stat van Coellen*, fol. 277. Coellen. 1499. fol.

† *Cyr. Spangenberg. Adels-Spiegel—Mirror of Nobility*, a detailed historical account of what nobility is, &c. Schmalkalden, 1591. fol. Fol. 403. b.

‡ *Petr. de Herentals*, Appendix, No. I.

§ *Jo. Trithem. Chronic. Sponheimense. A. 1371. Opera historic. Francof. 1601. fol. p. 332.* Also: *Abrah. Bzovii Annal. Ecclesiastic. Tom. XVI. Colon. Agripp. 1625. fol. Ann. 1371.* (*Maniaca passio. S. Johannis chorea.*)

|| *Jo. Pistorii Rerum Familiarumque Belgicarum Chronicon magnum. Francof. 1654. fol. p. 319.* Here the persons affected are called *dansatores*, *chorisantes*. See the whole passage in the Appendix, No. II. Compare *Incerti auctoris vetus chronicon Belgicum, Matthæi veteris avi Analecta. Hag. com. 1738. 4to. Tom. I. p. 51.* "Anno MCCCCLXXIV. the *dansers* appeared. Gens impacata cadit, dudum cruciata salvat." This should be *salivat*; a quotation from a Latin poem not now extant.

paroxysm was over, receive immediate relief on the attack of the tympany. This bandage was, by the insertion of a stick, easily twisted tight : many, however, obtained more relief from kicks and blows, which they found numbers of persons ready to administer ; for wherever the dancers appeared the people assembled in crowds to gratify their curiosity with the frightful spectacle. At length the increasing number of the affected excited no less anxiety than the attention that was paid to them. In towns and villages they took possession of the religious houses, processions were every where instituted on their account, and masses were said and hymns were sung, while the disease itself, of the demoniacal origin of which no one entertained the least doubt, excited every where astonishment and horror. In Liege the priests had recourse to exorcisms, and endeavoured by every means in their power to allay an evil which threatened so much danger to themselves ; for the possessed assembling in multitudes, frequently poured forth imprecations against them, and menaced their destruction. They intimidated the people also to such a degree that there was an express ordinance issued that no one should make any but square toed shoes, because these fanatics had manifested a morbid dislike to the pointed shoes which had come into fashion immediately after the *great mortality* in 1350*. They were still more irritated at the sight of red colours, the influence of which on the disordered nerves might lead us to imagine an extraordinary accordance between this spasmodic malady and the condition of infuriated animals, but in the St. John's dancers this excitement was probably connected with apparitions consequent upon their convulsions. There were likewise some of them who were unable to endure the sight of persons weeping†. The clergy seemed to become daily more and more confirmed in their belief that those who were affected were a kind of sectarians, and on this account they hastened their exorcisms as much as possible, in order that the evil might not spread amongst the higher classes, for hitherto scarcely any but the poor had been attacked, and the few people of respectability among the laity and clergy who were to be found among them, were persons whose natural frivolity was unable to withstand the excitement of novelty, even though it proceeded from a demoniacal influence. Some of the affected had indeed themselves declared, when under the influence of priestly forms of exorcism, that if the

* The Limburg Chronicle, published by C. D. Vogel. Marburg, 1828. 8vo. p. 27. This singular phenomenon cannot but remind us of the "Demon of Fashion," of the middle ages. Extravagant as the love of dress was after the middle of the fourteenth century, the opposition of the enemies of fashion was equally great, and they let slip no opportunity of crying down every change or innovation as the work of the devil. Hence it is extremely probable that the fanatic penitential sermons of zealous priests excited this singular aversion of the St. Vitus dancers. In later times also, signs and wonders took place, on account of things equally insignificant, and the fury of the possessed was directed against the fashions. Compare *Mohsen's History of the Sciences in the Mark of Brandenburg*, p. 498. f.

† *Petr. de Herentals*. Appendix, No. I.

demons had been allowed only a few weeks more time, they would have entered the bodies of the nobility and princes, and through these have destroyed the clergy. Assertions of this sort, which those possessed uttered whilst in a state which may be compared with that of magnetic sleep, obtained general belief, and passed from mouth to mouth with wonderful additions. The priesthood were, on this account, so much the more zealous in their endeavours to anticipate every dangerous excitement of the people, as if the existing order of things could have been seriously threatened by such incoherent ravings. Their exertions were effectual, for exorcism was a powerful remedy in the fourteenth century: or it might perhaps be that this wild infatuation terminated in consequence of the exhaustion which naturally ensued from it; at all events in the course of ten or eleven months the St. John's dancers were no longer to be found in any of the cities of Belgium. The evil, however, was too deeply rooted to give way altogether to such feeble attacks.*

A few months after this dancing malady had made its appearance at Aix-la-Chapelle, it broke out at Cologne, where the number of those possessed amounted to more than five hundred†, and about the same time at Metz, the streets of which place are said to have been filled with eleven hundred dancers‡. Peasants left their ploughs, mechanics their workshops, housewives their domestic duties, to join the wild revels, and this rich commercial city became the scene of the most ruinous disorder. Secret desires were excited, and but too often found opportunities for wild enjoyment; and numerous beggars, stimulated by vice and misery, availed themselves of this new complaint to gain a temporary livelihood. Girls and boys quitted their parents, and servants their masters, to amuse themselves at the dances of those possessed, and greedily imbibed the poison of mental infection. Above a hundred unmarried women were seen raving about in consecrated and unconsecrated places, and the consequences were soon perceived‡. Gangs of idle vagabonds, who understood how to imitate to the life the gestures and convulsions of those really affected, roved from place to place seeking maintenance and adventures, and thus, wherever they went, spreading this disgusting spasmodic disease like a plague; for in maladies of this kind the susceptible are infected as easily by the appearance as by the reality. At last it was found necessary to drive away these mischievous guests, who were equally inaccessible to the exorcisms of the priests and the remedies of the physicians. It was not, however, until, after four months that the Rhenish cities were able to suppress these impostures, which had so alarmingly increased the original evil. In the meantime, when once called into existence, the plague crept on,

* Respecting the exorcisms used, see E. G. Förstemann, the Christian Societies of Flagellants. Halle, 1828. 8vo. p. 232.

† Limburg Chronicle, p. 71. Cologne Chronicle. Loc. cit. See Appendix, Nos. III. & IV.

‡ Dans la ville y eut des dansans, Tant grands que petits onze cents. Journal de Paris, 1785.

§ Schenk v. Grafenberg. Loc. cit.

and found abundant food in the tone of thought which prevailed in the fourteenth and fifteenth centuries, and even, though in a minor degree, throughout the sixteenth and seventeenth, causing a permanent disorder of the mind, and exhibiting in those cities to whose inhabitants it was a novelty, scenes as strange as they were detestable.

2.—ST. VITUS'S DANCE*.

Strasburg was visited by the "Dancing Plague" in the year 1418, and the same infatuation existed among the people there, as in the towns of Belgium and the Lower Rhine. Many who were seized at the sight of those affected, excited attention at first by their confused and absurd behaviour, and then by their constantly following the swarms of dancers. These were seen day and night passing through the streets, accompanied by musicians playing on bagpipes, and by innumerable spectators attracted by curiosity, to which were added anxious parents and relations, who came to look after those among the misguided multitude who belonged to their respective families. Imposture and profligacy played their part in this city also, but the morbid delusion itself seems to have predominated. On this account religion could only bring provisional aid, and there-

* "Chorus Sancti Viti, or St. Vitus's dance; the lascivious dance, Paracelsus calls it, because they that are taken with it, can do nothing but dance till they be dead, or cured. It is so called for that the parties so troubled were wont to go to St. Vitus for help; and, after they had danced there awhile, they were certainly freed. 'Tis strange to hear how long they will dance, and in what manner, over stools, forms, tables; even great bellied women sometimes (and yet never hurt their children) will dance so long that they can stir neither hand nor foot, but seem to be quite dead. One in red clothes they cannot abide. Music above all things they love; and therefore magistrates in Germany will hire musicians to play to them, and some lusty, sturdy companions to dance with them. This disease hath been very common in Germany, as appears by those relations of Schenkius, and Paracelsus in his book of madness, who brags how many several persons he hath cured of it. Felix Platerus (*de Mentis Alienat. cap. 3.*) reports of a woman in Basle whom he saw, that danced a whole month together. The Arabians call it a kind of *palsie*. Bodine, in his fifth book, *de Repub. cap. 1.*, speaks of this infirmity; Monavius, in his last epistle to Scoltiziis, and in another to Dudithus, where you may read more of it."—*Burton's Anatomy of Melancholy*, Vol. I. p. 15.—Ed.

† *J. of Königshoven*, the oldest German Chronicle in existence. The contents are general, but devoted more exclusively to Alsace and Strasburg, published by *Schilttern*, Strasburg, 1698. 4to. *Observat. 21. of St. Vitus's Dance. p. 1085. f.*

"Viel hundert fingen zu Strafsburg an
Zu tanzen und springen Frau und Mann,
Am offnen Markt, Gassen und Strassen
Tag und Nacht ihrer viel nicht assen
Bis ihn das Wüthen wieder gelag,
St. Vits Tanz ward genannt die Plag.

"Many hundreds of men and women began to dance and jump in the public market-place, the lanes, and the streets of Strasburg. Many of them ate nothing for days and nights, until their mania again subsided. The plague was called St. Vitus's Dance."

fore the town-council benevolently took an interest in the afflicted. They divided them into separate parties, to each of which they appointed responsible superintendents to protect them from harm, and perhaps also to restrain their turbulence. They were thus conducted on foot and in carriages to the chapels of St. Vitus, near Zabern and Rotestein, where priests were in attendance to work upon their misguided minds by masses and other religious ceremonies. After divine worship was completed, they were led in solemn procession to the altar, where they made some small offering of alms, and where it is probable that many were, through the influence of devotion and the sanctity of the place, cured of this lamentable aberration. It is worthy of observation, at all events, that the dancing mania did not recommence at the altars of the saint, and that from him alone assistance was implored, and through his miraculous interposition a cure was expected, which was beyond the reach of human skill. The personal history of St. Vitus is by no means unimportant in this matter. He was a Sicilian youth who, together with Modestus and Crescentia, suffered martyrdom at the time of the persecution of the christians, under Diocletian, in the year 303*. The legends respecting him are obscure, and he would certainly have been passed over without notice among the innumerable apo-

* *Cæs. Baron. Annales ecclesiasticæ*. Tom. II. p. 819. Colon. Agripp. 1609. fol. See the more ample *Acta Sanctorum Junii*. (the 15th of June is St. Vitus's day) Tom. II. p. 1013. Antwerp, 1698. fol., from which we shall merely add that Mazara, in Sicily, is supposed to have been the birth-place of our Saint, and that his father's name was *Hylus*; that he went from thence with *Crescentia* (probably his nurse) and *Modestus* to Lucania, with both of whom he suffered martyrdom under *Diocletian*. They are all said to have been buried at Florence, and it was not long before the miraculous powers of St. Vitus, which had already manifested themselves in his lifetime, were acknowledged throughout Italy. The most celebrated of his chapels were situated on the Promontory of Sicily (called by his name), in Rome and in Polignano, whither many pilgrimages were made by the sick. Persons who had been bitten by mad dogs believed that they would find an infallible cure at his altars, though the power of the Saint in curing wounds of this kind was afterwards disputed by the followers of St. Hubertus, the Saint of the Chase. In 672, his body was with much pomp moved to Apulia, but soon after the priests of many churches and chapels in Italy, gave out that they were in possession of portions of the saint's body which worked miracles. In the eighth century the veneration of this youthful martyr extended itself to France, and the honour of possessing his body was conferred on the church of St. Denys. By command of the Pope it was solemnly delivered on the 19th of March, 836, by the Abbot *Hilduwinus*, of St. Denys, to the Abbot *Warinus*, of Corvey (founded in 822). On its way thither, which occupied three months (to the 13th of June) many miracles were performed, and the subsequent Abbots of Corvey were able for centuries to maintain the popular belief in the miraculous healing power of those relics, which had indiscriminate influence on all diseases, more especially on those of a demoniacal kind. See *Monachi anonymi Historia translationis S. Viti*. In *G. H. Pertz, Monumenta Germaniæ Historica*. Tom. II. Hannov. 1828, fol. p. 576. As a proof of the great veneration for St. Vitus in the fourteenth century, we may further mention that Charles IV. dedicated to him the Cathedral of Prague, of which he had laid the foundation, and caused him to be proclaimed Patron Saint of Bohemia, and a nominal body of the holy martyr was for this purpose brought from Parma. *Act. Sanctor. loc. cit.*

cryphal martyrs of the first centuries, had not the transfer of his body to St. Denys, and thence, in the year 836, to Corvey, raised him to a higher rank. From this time forth, it may be supposed that many miracles were manifested at his new sepulchre, which were of essential service in confirming the Roman faith among the Germans, and St. Vitus was soon ranked among the fourteen saintly helpers (Nothhelfer or Apotheker*). His altars were multiplied, and the people had recourse to them in all kinds of distresses, and revered him as a powerful intercessor. As the worship of these saints was however at that time stripped of all historical connections, which were purposely obliterated by the priesthood, a legend was invented at the beginning of the fifteenth century, or perhaps even so early as the fourteenth, that St. Vitus had, just before he bent his neck to the sword, prayed to God that he might protect from the dancing mania all those who should solemnize the day of his commemoration, and fast upon its eve, and that thereupon a voice from heaven was heard, saying, "Vitus, thy prayer is accepted†." Thus St. Vitus became the patron saint of those afflicted with the dancing plague, as St. Martin, of Tours, was at one time the succourer of persons in small-pox; St. Antonius of those suffering under the hellish fire,‡ and as St. Margaret was the Juno Lucina of puerperal women.

3.—CAUSES.

The connection which John the Baptist had with the dancing mania of the fourteenth century, was of a totally different character. He was originally far from being a protecting saint to those who were attacked, or one who would be likely to give them relief from a malady considered as the work of the devil. On the contrary, the manner in which he was worshipped afforded an important and very evident cause for its development. From the remotest period, perhaps, even so far back as the fourth century, St. John's day was solemnized with all sorts of strange and rude customs, of which the originally mystical meaning was variously disfigured among different nations by superadded relics of heathenism.‡ Thus the Germans transferred to the festival of St. John's day an ancient heathen usage,

* Probably a corruption of Apotropæi. The expression is constantly met with; for example, in *Agricola*, Proverbs, No. 497. These are the διὶ ἀλῆξιμοι the dii averrunci of the ancients. The fourteen saints, to whose churches (between Bamberg and Coburg,) thousands still annually make pilgrimages, are the following: 1. Georgius. 2. Blasius. 3. Erasmus. 4. Vitus. 5. Pantaleon. 6. Christophorus. 7. Dionysius. 8. Cyriacus. 9. Achatius. 10. Eustachius. 11. Aegidius. 12. Margaretha. 13. Catharina. 14. Barbara.

† *J. Agricola*. Sybenhundert und fünfzig Teutscher Sprichwörter. No. 497. Seven hundred and fifty German Proverbs. Hagemau, 1537. 8vo. fol. 248.

‡ *St. Augustine* warned the people against committing excesses and singing profane songs at the festival of St. John: "Nec permittamus solemnitatem sanctam cantica luxuriosa proferendo polluere."—*St. Augusti Denkwürdigkeiten aus der Christlichen Archæologie*. Vol. III. p. 166. Leipzig. 1820. 8vo. *Memorabilia of Christian Archæology*.

the kindling of the "Nodfyr," which was forbidden them by St. Boniface, and the belief subsists even to the present day that people and animals that have leaped through these flames, or their smoke, are protected for a whole year from fevers and other diseases, as if by a kind of baptism by fire.* Bacchanalian dances, which have originated in similar causes among all the rude nations of the earth, and the wild extravagancies of a heated imagination, were the constant accompaniments of this half-heathen, half-christian, festival. At the period of which we are treating, however, the Germans were not the only people who gave way to the ebullitions of fanaticism in keeping the festival of St. John the Baptist. Similar customs were also to be found among the nations of Southern Europe and of Asia.† and it is more than probable that the Greeks transferred to the festival of John the Baptist, who is also held in high esteem among the Mahomedans, a part of their Bacchanalian mysteries, an absurdity of a kind which is but too frequently met with in human affairs. How far a remembrance of the history of St. John's death may have had an influence on this occasion, we would leave learned theologians to decide. It is only of importance here to add, that in Abyssinia, a country entirely separated from Europe, where Christianity has maintained itself in its primeval simplicity against Mahomedanism, John is to this day worshipped, as protecting saint of those who are attacked with the dancing malady.‡ In these fragments of the dominion of mysticism and superstition, historical connection is not to be found.

When we observe, however, that the first dancers in Aix-la-Chapelle appeared in July with St. John's name in their mouths, the conjecture is probable that the wild revels of St. John's day, A. D. 1374, gave rise to this mental plague, which thenceforth has visited so many thousands with incurable aberration of mind, and disgusting distortions of body.

* *Wirthwein* Series chronologic. Epistolarum S. Bonifacii ab ann. 716—755. LVII. Concil. Liptinens. p. 131. XV. De igne fricato de ligno, id est, Nodfyr. See *Joh. Reiskii*. Untersuchung des bei den Alten Teutschen gebräuchlichen heidnischen Nodfyr, imgleichen des Oster-und Johannis-Feuers. Inquiry respecting the heathen Nodfyr's customary among the ancient Germans, and also the Easter and St. John's fires. Frankfort. 1696. 8vo.

† The Bishop *Theodore* of Cyrus in Syria, states, that at the festival of St. John, large fires were annually kindled in several towns, through which men, women and children jumped; and that young children were carried through by their mothers. He considered this custom as an ancient Asiatic ceremony of purification, similar to that recorded of Ahaz, in 2 Kings, xvi. 3. (Quæstiones in IV. Libr. Regum. Interrogat. 47, p. 352. *Beati Theodoret*, Episcop. Cyri Opera omnia. Ed. *Jac. Sirmondii*, Lut. Paris. 1642. fol. T. I.) *Zonaras*, *Balsamon* and *Photius* speak of the St. John's fires in Constantinople, and the first looks upon it as the remains of an old Grecian custom. See *Reiske*, loc. cit. p. 81. That such different nations should have had the same idea of fixing the purification by fire on St. John's day, is a remarkable coincidence, which perhaps can be accounted for only by its analogy to baptism.

‡ The Life and Adventures of *Nathaniel Pearce*, written by himself, during a residence in Abyssinia from the years 1810 to 1819. Edited by *J. J. Halle*. 2 Vols. 8vo. London, 1831. cha. ix. p. 290.

This is rendered so much the more probable, because some months previously the districts in the neighbourhood of the Rhine and the Maine had met with great disasters. So early as February, both these rivers had overflowed their banks to a great extent; the walls of the town of Cologne, on the side next the Rhine, had fallen down, and a great many villages had been reduced to the utmost distress.* To this was added the miserable condition of Western and Southern Germany. Neither law or edict could suppress the incessant feuds of the Barons, and in Franconia especially, the ancient times of club law appeared to be revived. Security of property there was none; arbitrary will every where prevailed; corruption of morals and rude power rarely met with even a feeble opposition; whence it arose that the cruel, but lucrative, persecutions of the Jews, were in many places still practised through the whole of this century, with their wonted ferocity. Thus, throughout the western parts of Germany, and especially in the districts bordering on the Rhine, there was a wretched and oppressed populace; and if we take into consideration, that among their numerous bands many wandered about, whose consciences were tormented with the recollection of the crimes which they had committed during the prevalence of the black plague, we shall comprehend how their despair sought relief in the intoxication of an artificial delirium.† There is hence good ground for supposing that the frantic celebration of the festival of St. John, A. D. 1374, only served to bring to a crisis, a malady which had been long impending; and if we would further inquire how a hitherto harmless usage, which, like many others, had but served to keep up superstition, could degenerate into so serious a disease, we must take into account the unusual excitement of men's minds, and the consequences of wretchedness and want. The bowels, which in many were debilitated by hunger and bad food, were precisely the parts which in most cases were attacked with excruciating pain, and the tympanitic state of the intestines, points out to the intelligent physician, an origin of the disorder which is well worth consideration.

4.—MORE ANCIENT DANCING PLAGUES.

The dancing mania of the year 1374 was in fact, no new disease,

* *Joann. Trithem.* Annal. Hirsaugiens. Oper. Tom. II. Hirsang. 1690. fol. p. 263. A. 1374. See the before-mentioned Chronicle of Cologne. fol. 276. b. wherein it is said that the people passed in boats and rafts over the city walls.

† What took place at the St. John's fires in the middle ages (about 1280) we learn by a communication from the Bishop *Guil. Durantes* of Aquitania (*Rationale divinorum officiorum*. L. VII. c. 26. In *Reiske* Loc. cit. p. 77.) Bones, horns, and other rubbish, were heaped together to be consumed in smoke, while persons of all ages danced round the flames as if they had been possessed, in the same way as at the Palilia, an ancient Roman lustration by fire, whereat those who took part in them, sprang through a fire made of straw. (*Ovid. Met. XIV. 774. Fast. IV. 721.*) Others seized burning flambeaux, and made a circuit of the fields, in the supposition that they thereby screened them from danger, while others, again, turned a cart wheel, to represent the retrograde movement of the sun.

but a phenomenon well known in the middle ages, of which many wondrous stories were traditionally current among the people. In the year 1237, upwards of a hundred children were said to have been suddenly seized with this disease at Erfurt, and to have proceeded dancing and jumping along the road to Arnstadt. When they arrived at that place they fell exhausted to the ground, and according to an account of an old chronicle, many of them, after they were taken home by their parents, died, and the rest remained affected to the end of their lives with a permanent tremor.* Another occurrence was related to have taken place on the Mosel bridge at Utrecht, on the 17th day of June, A. D. 1278, when two hundred fanatics began to dance, and would not desist until a priest passed who was carrying the Host to a person that was sick, upon which, as if in punishment of their crime, the bridge gave way, and they were all drowned.† A similar event also occurred so early as the year 1027, near the convent church of Kolbig, not far from Bernburg. According to an oft repeated tradition, eighteen peasants, some of whose names are still preserved, are said to have disturbed divine service on Christmas eve, by dancing and brawling in the churchyard, whereupon the priest, Ruprecht, inflicted a curse upon them, that they should dance and scream for a whole year without ceasing. This curse is stated to have been completely fulfilled, so that the unfortunate sufferers at length sunk knee deep into the earth, and remained the whole time without nourishment, until they were finally released by the intercession of two pious bishops. It is said, that upon this, they fell into a deep sleep, which lasted three days, and that four of them died: the rest continuing to suffer all their lives from a trembling of their limbs.‡ It is not worth while to separate what may have been true, and what the addition of crafty priests in this strangely distorted story. It is sufficient that it was believed, and related with astonishment and horror throughout the middle ages; so that when there was any exciting cause for their delirious raving, and wild rage for dancing, it failed not to produce its effects upon men whose thoughts were given up to a belief in wonders and apparitions.

This disposition of mind, altogether so peculiar to the middle ages, and which, happily for mankind, has yielded to an improved state of civilization and the diffusion of popular instruction, accounts for the origin and long duration of this extraordinary mental disorder. The good sense of the people recoiled with horror and aversion from this heavy plague, which, whenever malevolent persons wished to curse their bitterest enemies and adversaries, was long after used as a male-

* *J. Chr. Beckmann*, *Historia des Fürstenthums Anhalt*. Zerbst. History of the Principality of Anhalt. Zerbst. 1710. fol. Part. III. book 4. chap. 4. § 3. p. 467.

† *Martini Minoritæ Flores temporum*, in *Jo. Georg. Eccard*, *Corpus historiae medii ævi*. Lips. 1723. fol. Tom. I. p. 1632.

‡ *Beckmann*. Loc. cit. § 1. f. p. 465, where many other observations are made on this well known circumstance. The priest named, is the same who is still known in the nursery tales of children as the *Knecht Ruprecht*.

diction.* The indignation also that was felt by the people at large against the immorality of the age, was proved by their ascribing this frightful affliction to the inefficacy of baptism by unchaste priests, as if innocent children were doomed to atone, in after years, for this desecration of the sacrament administered by unholy hands.† We have already mentioned what perils the priests in the Netherlands incurred from this belief. They now, indeed, endeavoured to hasten their reconciliation with the irritated, and at that time very degenerate people,‡ by exorcisms, which, with some, procured them greater respect than ever, because they thus visibly restored thousands of those who were affected. In general, however, there prevailed a want of confidence in their efficacy, and then the sacred rites had as little power in arresting the progress of this deeply rooted malady, as the prayers and holy services subsequently had at the altars of the greatly revered martyr St. Vitus. We may therefore ascribe it to accident merely, and to a certain aversion to this demoniacal disease, which seemed to lie beyond the reach of human skill, that we meet with but few and imperfect notices of the St. Vitus's dance in the second half of the fifteenth century. The highly coloured descriptions of the sixteenth century contradict the notion that this mental plague had in any degree diminished in its severity, and not a single fact is to be found which supports the opinion, that any one of the essential symptoms of the disease, not even excepting the tympany, had disappeared, or that the disorder itself had become milder in its attacks. The physicians never, as it seems, throughout the whole of the fifteenth century, undertook the treatment of the dancing mania, which, according to the prevailing notions, appertained exclusively to the servants of the church. Against demoniacal disorders they had no remedies, and though some at first did promulgate the opinion, that the malady had its origin in natural circumstances, such as a hot temperament, and other causes named in the phraseology of the schools,§ yet these opinions were the less examined, as it did not appear worth while to divide with a jealous priesthood, the care of a host of fanatical vagabonds and beggars.

5.—PHYSICIANS.

It was not until the beginning of the sixteenth century that the St. Vitus's dance was made the subject of medical research, and stripped

* “Das dich Sanct Veitstanz ankomme.” May you be seized with St. Vitus's Dance. *Joh. Agricola*, Sybenhundert und funffzig Teutscher Sprichwörter. Hagenau 1537, 8. N. 497, p. 298.

† *Spangenberg* (Adels-Spiegel. Mirror of Nobility, loc. cit.) in his own forcible manner, thus expresses himself on this subject: “It was afterwards pointed out by some, that these people could not have been properly baptized, or at all events, that their baptism was ineffectual, because they had received it from priests who shamelessly lived in open cohabitation with unchaste harlots. Upon this the lower classes rose in rebellion, and would have killed all the priests.” Compare Appendix No. I.

‡ *Bzovii* Annal. ecclesiastic. Loc. cit. 1468.

§ See Appendix, Nos. III. and IV.

of its unhallowed character as a work of demons. This was effected by Paracelsus, that mighty, but as yet scarcely comprehended reformer of medicine, whose aim it was to withdraw diseases from the pale of miraculous interpositions and saintly influences, and explain their causes upon principles deduced from his knowledge of the human frame. "We will not however admit that the saints have power to inflict diseases, and that these ought to be named after them, although many there are, who in their theology, lay great stress on this supposition, ascribing them rather to God than to nature, which is but idle talk. We dislike such nonsensical gossip as is not supported by symptoms, but only by faith, which is a thing not human, whereon the gods themselves set no value."

Such were the words which Paracelsus addressed to his contemporaries, who were as yet incapable of appreciating doctrines of this sort; for the belief in enchantment still remained every where unshaken, and faith in the world of spirits still held men's minds in so close a bondage that thousands were, according to their own conviction, given up as a prey to the devil; while at the command of religion as well as of law, countless piles were lighted, by the flames of which human society was to be purified.

Paracelsus divides the St. Vitus's dance into three kinds. First, that which arises from imagination (*Vitista*, *Chorea imaginativa*, *æstimativa*), by which the original dancing plague is to be understood. Secondly, that which arises from sensual desires, depending on the will (*Chorea lasciva*). Thirdly, that which arises from corporeal causes (*Chorea naturalis*, *coæta*), which, according to a strange notion of his own, he explained by maintaining, that in certain vessels which are susceptible of an internal pruriency, and thence produce laughter, the blood is set in commotion, in consequence of an alteration in the vital spirits, whereby involuntary fits of intoxicating joy, and a propensity to dance, are occasioned*. To this notion he was, no doubt, led from having observed a milder form of St. Vitus's dance, not uncommon in his time, which was accompanied by involuntary laughter; and which bore a resemblance to the hysterical laughter of the moderns, except that it was characterized by more pleasurable sensations, and by an extravagant propensity to dance. There was no howling, screaming, and jumping, as in the severer form; neither was the disposition to dance by any means insuperable. Patients thus affected, although they had not a complete control over their understandings, yet were sufficiently self-possessed during the attack, to obey the directions which they received. There were even some among them who did not dance at all, but only felt an involuntary impulse to allay the internal sense of disquietude, which is the usual forerunner of an attack of this kind, by laughter, and quick walking carried to the extent of pro-

* *Theophrasti Bombast von Hohenheim*, 7 Buch in der Artzney. Von den Krankheiten, die der Vernunft berauben. Of the diseases which produce insanity. Tract I. chap. 3. p. 491. Tract II. chap. 3. p. 501. Opera, Strassburg, 1616. fol. Tom. I.

ducing fatigue*. This disorder, so different from the original type, evidently approximates to the modern chorea; or rather is in perfect accordance with it, even to the less essential symptom of laughter. A mitigation in the form of the dancing mania had thus clearly taken place at the commencement of the sixteenth century.

On the communication of the St. Vitus's dance by sympathy, Paracelsus, in his peculiar language, expresses himself with great spirit, and shows a profound knowledge of the nature of sensual impressions, which find their way to the heart,—the seat of joys and emotions,—which overpower the opposition of reason; and whilst “all other qualities and natures” are subdued, incessantly impel the patient, in consequence of his original compliance, and his all conquering imagination, to imitate what he has seen. On his treatment of the disease, we cannot bestow any great praise, but must be content with the remark, that it was in conformity with the notions of the age in which he lived. For the first kind, which often originated in passionate excitement, he had a mental remedy, the efficacy of which is not to be despised, if we estimate its value in connection with the prevalent opinions of those times. The patient was to make an image of himself in wax or resin, and by an effort of thought to concentrate all his blasphemies and sins in it. “Without the intervention of any other person, to set his whole mind and thoughts concerning these oaths in the image;” and when he had succeeded in this, he was to burn the image, so that not a particle of it should remain†. In all this there was no mention made of St. Vitus, or any of the other mediatory saints, which is accounted for by the circumstance, that at this time, an open rebellion against the Romish Church had begun, and the worship of saints was by many rejected as idolatrous‡. For the second kind of St. Vitus's dance, arising from sensual irritation, with which women

* Choreæ procursiva of the Moderns. *Berut*, Monographia Choreæ Sti Viti. Prag 1810. p. 25.

† This proceeding was, however, no invention of his, but an imitation of a usual mode of enchantment by means of wax figures (*per icunculas*). The witches made a wax image of the person who was to be bewitched; in order to torment him, they stuck it full of pins, or melted it before the fire. The books on magic, of the middle ages, are full of such things; though the reader who may wish to obtain information on this subject, need not go so far back. Only eighty years since, the learned and celebrated *Storch*, of the school of *Stahl*, published a treatise on witchcraft, worthy of the fourteenth century. “*Abhandlung von Kinderkrankheiten*.” Treatise on the Diseases of Children. Vol. IV. p. 228. Eisenach, 1751-8.

The Ancients were in the habit of employing wax in incantations.

Thus Simoetha in Theocritus:

Ὡς τούτων τὸν καρὸν συν δαίμονι τακκα,
Ὡς τακκῇ ὑπ ἑρώτις ὁ Μυρτιάς αὐτικὰ Δελφίς.

See *Potter's Antiquities*. Vol. II. p. 251.

and Horace—

“Lanea et effigies erat, altera cerea.”

Lib. 1. Sat. 8. l. 30.—Tr.

‡ See *Agricola*. Loc. cit. p. 269. No. 498.

were far more frequently affected than men, Paracelsus recommended harsh treatment and strict fasting. He directed that the patients should be deprived of their liberty; placed in solitary confinement, and made to sit in an uncomfortable place, until their misery brought them to their senses and to a feeling of penitence. He then permitted them gradually to return to their accustomed habits. Severe corporal chastisement was not omitted; but on the other hand, angry resistance on the part of the patient was to be sedulously avoided, on the ground that it might increase his malady, or even destroy him: moreover, where it seemed proper, Paracelsus allayed the excitement of the nerves by immersion in cold water. On the treatment of the third kind we shall not here enlarge. It was to be effected by all sorts of wonderful remedies, composed of the quintessences; and it would require, to render it intelligible, a more extended exposition of peculiar principles than suits our present purpose.

6.—DECLINE AND TERMINATION OF THE DANCING PLAGUE.

About this time the St. Vitus's dance began to decline, so that milder forms of it appeared more frequently, while the severer cases became more rare; and even in these, some of the important symptoms gradually disappeared. Paracelsus makes no mention of the tympanites as occurring after the attacks, although it may occasionally have occurred; and Schenck von Graffenberg, a celebrated physician of the latter half of the sixteenth century,* speaks of this disease as having been frequent only in the time of his forefathers; his descriptions however are applicable to the whole of that century, and to the close of the fifteenth.† The St. Vitus's dance attacked people of all stations, especially those who led a sedentary life, such as shoemakers and tailors; but even the most robust peasants abandoned their labours in the fields, as if they were possessed by evil spirits; and thus those affected were seen assembling indiscriminately, from time to time, at certain appointed places, and unless prevented by the lookers on, continuing to dance without intermission, until their very last breath was expended. Their fury and extravagance of demeanor so completely deprived them of their senses, that many of them dashed their brains out against the walls and corners of buildings, or rushed headlong into rapid rivers, where they found a watery grave. Roaring and foaming as they were, the bystanders could only succeed in restraining them by placing benches and chairs in their way, so that their strength might be exhausted by the high leaps they were thus tempted to take. As soon as this was the case, they fell as it were lifeless to the ground, and, by very slow degrees,

* *Johann Schenck von Graffenberg*, born 1530, took his degree at Tübingen in 1554. He passed the greater part of his life as physician to the corporation of Freiburg in the Breisgau, and died in 1597.

† *J. Schenkii a Graffenberg Observationum medicarum rariorum in Libri VII. Lugdun. 1643. fol. L. I. Obs. VIII. p. 136.*

again recovered their strength. Many there were, who even with all this exertion, had not expended the violence of the tempest which raged within them, but awoke with newly revived powers, and again and again mixed with the crowd of dancers, until at length the violent excitement of their disordered nerves was allayed by the great involuntary exertion of their limbs; and the mental disorder was calmed by the extreme exhaustion of the body. Thus the attacks themselves were in these cases, as in their nature they are in all nervous complaints, necessary crises of an inward morbid condition, which was transferred from the sensorium to the nerves of motion, and at an earlier period to the abdominal plexus, where a deep seated derangement of the system was perceptible from the secretion of flatus in the intestines.

The cure effected by these stormy attacks was in many cases so perfect, that some patients returned to the factory or the plough as if nothing had happened. Others, on the contrary, paid the penalty of their folly by so total a loss of power, that they could not regain their former health, even by the employment of the most strengthening remedies. Medical men were astonished to observe that women in an advanced state of pregnancy were capable of going through an attack of the disease, without the slightest injury to their offspring, which they protected merely by a bandage passed round the waist. Cases of this kind were not unfrequent so late as Schenck's time. That patients should be violently affected by music, and their paroxysms brought on and increased by it, is natural with such nervous disorders; where deeper impressions are made through the ear, which is the most intellectual of all the organs, than through any of the other senses. On this account the magistrates hired musicians for the purpose of carrying the St. Vitus's dancers so much the quicker through the attacks, and directed, that athletic men should be sent among them in order to complete the exhaustion which had been often observed to produce a good effect.* At the same time there was a prohibition against wearing red garments, because, at the sight of this colour those affected became so furious, that they flew at the persons who wore it, and were so bent upon doing them an injury that they could with difficulty be restrained. They frequently tore their own clothes whilst in the paroxysm, and were guilty of other improprieties, so that the more opulent employed confidential attendants to accompany them, and to take care that they did no harm either to themselves or others. This extraordinary disease was,

* It is related by *Felix Plater* (born 1536, † 1614,) that he remembered in his youth the authorities of Basle having commissioned several powerful men to dance with a girl, who had the dancing mania, till she recovered from her disorder. They successively relieved each other; and this singular mode of cure lasted above four weeks, when the patient fell down exhausted, and being quite unable to stand, was carried to a hospital, where she recovered. She had remained in her clothes all the time, and, entirely regardless of the pain of her lacerated feet, she had merely sat down occasionally to take some nourishment, or to slumber, during which the hopping movement of her body continued. *Felix Plateri Praxeos medicæ opus*. L. I. ch. iii. p. 88. Tom. I. Basil, 1656. 4. Ejusd. Observation. Basil, 1641. 8. p. 92.

however, so greatly mitigated in Schenck's time, that the St. Vitus's dancers had long ceased to stroll from town to town; and that physician, like Paracelsus, makes no mention of the tympanitic inflation of the bowels. Moreover, most of those affected, were only annually visited by attacks; and the occasion of them was so manifestly referrible to the prevailing notions of that period, that if the unqualified belief in the supernatural agency of saints could have been abolished, they would not have had any return of the complaint. Throughout the whole of June, prior to the festival of St. John, patients felt a disquietude and restlessness which they were unable to overcome. They were dejected, timid, and anxious; wandered about in an unsettled state, being tormented with twitching pains, which seized them suddenly in different parts, and eagerly expected the eve of St. John's day, in the confident hope, that by dancing at the altars of this saint, or of St. Vitus (for in the Breisgau aid was equally sought from both), they would be freed from all their sufferings. This hope was not disappointed; and they remained, for the rest of the year, exempt from any further attack, after having thus, by dancing and raving for three hours, satisfied an irresistible demand of nature. There were at that period two chapels in the Breisgau, visited by the St. Vitus's dancers; namely, the Chapel of St. Vitus at Biessen, near Breisach, and that of St. John, near Wasenweiler; and it is probable that in the south-west of Germany, the disease was still in existence in the seventeenth century.

However, it grew every year more rare, so that, at the beginning of the seventeenth century, it was observed only occasionally in its ancient form. Thus in the spring of the year 1623, G. Horst saw some women who annually performed a pilgrimage to St. Vitus's chapel at Drefelhausen, near Weissenstein, in the territory of Ulm, that they might wait for their dancing fit there, in the same manner as those in the Bresigau did, according to Schenck's account. They were not satisfied, however, with a dance of three hour's duration, but continued day and night in a state of mental aberration, like persons in an ecstasy, until they fell exhausted to the ground; and when they came to themselves again, they felt relieved from a distressing uneasiness and painful sensation of weight in their bodies, of which they had complained for several weeks prior to St. Vitus's day.*

After this commotion they remained well for the whole year; and such was their faith in the protecting power of the saint, that one of them had visited this shrine at Drefelhausen more than twenty times, and another had already kept the Saint's day for the thirty-second time at this sacred station.

The dancing fit itself was excited here, as it probably was in other places, by music, from the effects of which, the patients were thrown into a state of convulsion.† Many concurrent testimonies serve to show that music generally contributed much to the continuance of the St. Vitus's dance, originated, and increased its paroxysms, and

*The 15th of June. Here therefore they did not wait till the Festival of St. John.

† *Gregor. Horstii Observationum medicinalium singularium, Libri IV. priores. His accessit Epistolarum et Consultationum medicar. L.b.I. Ulm. 1628. 4to. Epistol. p. 374.*

was sometimes the cause of their mitigation. So early as the fourteenth century, the swarms of St. John's dancers were accompanied by minstrels playing upon noisy instruments, who roused their morbid feelings; and it may really be supposed that, by the performance of lively melodies, and the stimulating effects which the shrill tones of fifes and trumpets would produce, a paroxysm, that was perhaps but slight in itself, might in many cases, be increased to the most outrageous fury, such as in later times, was purposely induced in order that the force of the disease might be exhausted by the violence of its attack. Moreover by means of intoxicating music a kind of demoniacal festival for the rude multitude was established, which had the effect of spreading this unhappy malady wider and wider. Soft harmony was, however, employed to calm the excitement of those affected, and it is mentioned as a character of the tunes played with this view to the St. Vitus's dancers, that they contained transitions from a quick to a slow measure, and passed gradually from a high to a low key.* It is to be regretted that no trace of this music has reached our times, which is owing partly to the disastrous events of the seventeenth century, and partly to the circumstance that the disorder was looked upon as entirely national, and only incidentally considered worthy of notice by foreign men of learning. If the St. Vitus's dance was already on the decline at the commencement of the seventeenth century, the subsequent events were altogether adverse to its continuance. Wars carried on with animosity and with various success for thirty years, shook the west of Europe; and although the unspeakable calamities which they brought upon Germany, both during their continuance, and in their immediate consequences, were by no means favourable to the advance of knowledge, yet, with the vehemence of a purifying fire, they gradually effected the intellectual regeneration of the Germans; superstition, in her ancient form, never again appeared, and the belief in the dominion of spirits, which prevailed in the middle ages, lost for ever its once formidable power.

I I. — D A N C I N G M A N I A

IN

I T A L Y.

1.—TARANTISM.

It was of the utmost advantage to the St. Vitus's dancers that they made choice of a favourite patron saint; for, not to mention that people were inclined to compare them to the possessed with evil

* *Jo. Bodin. Method. historie. Amstelod. 1650. 12mo. Ch. V. p. 99. Idem, de Republica. Francofurt. 1591. 8vo. Lib. V. Ch. I. p. 789.*

spirits, described in the Bible, and thence to consider them as innocent victims to the power of Satan, the name of their great intercessor recommended them to general commiseration, and a magic boundary was thus set to every harsh feeling which might otherwise have proved hostile to their safety. Other fanatics were not so fortunate, being often treated with the most relentless cruelty whenever the notions of the middle ages either excused or commanded it as a religious duty.* Thus, passing over the innumerable instances of the burning of witches, who were, after all, only labouring under a delusion, the Teutonic knights in Prussia not unfrequently condemned those maniacs to the stake who imagined themselves to be metamorphosed into wolves—an extraordinary species of insanity, which having existed in Greece, before our era, spread, in process of

* (Translator's note.) A very remarkable case, illustrative of this observation, where, however, not the person who was supposed to be the subject of the demoniacal malady, but its alleged authors, were punished, is thus reported by Dr. Watt, of Glasgow:—"It occurred at Bargarran, in Renfrewshire, in 1696. The patient's name was Christian Shaw, a girl of eleven years of age. She is described as having had violent fits of leaping, dancing, running, crying, fainting, &c., but the whole narrative is mixed up with so much credulity and superstition, that it is impossible to separate truth from fiction. These strange fits continued from August, 1696, till the end of March in the year following, when the patient recovered." An account of the whole was published at Edinburgh, in 1698, entitled, "A true narrative of the Sufferings of a Young Girl, who was strangely molested by evil spirits, and their instruments, in the West, collected from authentic testimonies."

The whole being ascribed to witchcraft, the clergy were most active on the occasion. Besides occasional days of humiliation, two solemn fasts were observed throughout the whole bounds of the Presbytery, and a number of clergymen and elders were appointed in rotation, to be constantly on the spot. So far the matter was well enough. But such was the superstition of the age, that a memorial was presented to his Majesty's most honourable Privy Council, and on the 19th of January, 1697, a warrant was issued, setting forth "that there were pregnant grounds of suspicion of witchcraft in Renfrewshire, especially from the afflicted and extraordinary condition of Christian Shaw, daughter of John Shaw, of Bargarran." A commission was therefore granted to Alexander Lord Blantyre, Sir John Maxwell, Sir John Shaw, and five others, together with the sheriff of the county, to inquire into the matter, and report. This commission is signed by eleven privy councillors, consisting of some of the first noblemen and gentlemen in the kingdom.

The report of the commissioners having fully confirmed the suspicions respecting the existence of witchcraft, another warrant was issued on the 5th of April, 1697, to Lord Halleraig, Sir John Houston, and four others, "to try the persons accused of witchcraft, and to sentence the guilty to be burned, or otherwise executed, to death, as the commission should incline."

The commissioners, thus empowered, were not remiss in the discharge of their duty. After twenty hours were spent in the examination of witnesses, and counsel heard on both sides, the counsel for the prosecution "exhorted the jury to beware of condemning the innocent: but at the same time, should they acquit the prisoners in opposition to legal evidence, they would be accessory to all the blasphemies, apostacies, murders, tortures, and seductions, whereof these enemies of heaven and earth should hereafter be guilty." After the jury had spent six hours in deliberation, seven of the miserable wretches, three men and four women, were condemned to the flames, and the sentence faithfully executed at Paisley, on the 10th of June, 1697.—*Medico-Chirurg. Trans.* Vol. V. p. 20. et seq.

† See *Olaus Magnus*, de gentibus septentrionalibus, Lib. XVIII. Ch. 45—47. p. 642. seq. Rom. 1555, fol.

time, over Europe, so that it was communicated not only to the Romaic, but also to the German and Sarmatian nations, and descended from the ancients, as a legacy of affliction to posterity. In modern times, Lycanthropy, such was the name given to this infatuation, has vanished from the earth, but it is nevertheless well worthy the consideration of the observer of human aberrations, and a history of it by some writer who is equally well acquainted with the middle ages as with antiquity is still a desideratum.* We leave it, for the

* (Translator's note.) Burton, in his *Anatomy of Melancholy*, has the following observations, which, with the ample references by which they are accompanied, will furnish materials for such a history.

"*Lycanthropia*, which Avicenna calls *cucubuth*, others *lupinam insaniam*, or wolf-madness, when men run howling about graves and fields in the night, and will not be persuaded but that they are wolves, or some such beasts. Aëtius(1) and Paulus(2) call it a kind of *melancholy*; but I should rather refer it to *madness*, as most do. Some make a doubt of it, whether there be any such disease. Donat. ab Altomari(3) saith, that he saw two of them in his time: Wierus(4) tells a story of such a one at Padua, 1541, that would not believe to the contrary, but that he was a wolf. He hath another instance of a Spaniard, who thought himself a bear. Forestus(5) confirms as much by many examples; one, among the rest, of which he was an eye witness, at Alemaer in Holland.—A poor husbandman that still hunted about graves, and kept in church-yards, of a pale, black, ugly, and fearful look. Such, belike, or little better, were king Prætus' daughters,(6) that thought themselves kine; and Nebuchadnezzar, in Daniel, as some interpreters hold, was only troubled with this kind of madness. This disease, perhaps, gave occasion to that bold assertion of Pliny,(7) *some men were turned into wolves in his time, and from wolves to men again*; and to that fable of Pausanius, of a man that was ten years a wolf, and afterwards turned to his former shape; to Ovid's(8) tale of Lycaon, &c. He that is desirous to hear of this disease, or more examples, let him read Austin in his eighteenth book, *de Civitate Dei*, cap. 5; Mizallus, cent. 5. 77; Schenkinius, lib. 1. *Hildesheim, Spiel.* 2. *de mania*; Forestus, lib. 10. *de morbis cerebri*; Olaus Magnus; Vicentius Belavicensis, *spec. med.* lib. 31. c. 122; Pierius, Bodine, Zuinger, Zeilgar, Peucer, Wierus, Spranger, &c. This malady, saith Avicenna, troubleth men most in February, and is now a-dayes frequent in Bohemia and Hungary, according to Heurnius. (9) Schernitzius will have it common in Livonia. They lye hid, most part, all day, and go abroad in the night, barking, howling, at graves and deserts; *they have usually hollow eyes, scabbed legs and thighs, very dry and pale*, (10) saith Altomarus: he gives a reason there of all the symptomes, and sets down a brief cure of them."—*Burton's Anatomy of Melancholy*. Tenth Edit.: 8vo. 1804. Vol I. Page 13. et. seq.

It is surprising that so learned a writer as Burton should not have alluded to Oribasius who flourished 140 years before Aëtius, and of whom Freind says, "In auctore hoc miri cujusdam morbi prima mentio est; is *Λυκανθρωπία*, sive *Λυκανθρωπία* dicitur, estque melancholix, aut insanix, species quænam ita ab illa descripta: 'Quos hoc malum infestos habet, nocturno tempore domo egressi, Lupos in omnibus rebus imitantur, et ad diem usque circa tumulos vagantur mortuorum. Hos ita cognoscet: pallidi sunt, oculos hebetes et siccos, non illachrymantes, eosque concavos habent: lingua siccissima est, nulla penitus in ore saliva conspicitur, siti enecti; crura vero, quia noctu sæpe offendunt, sine

(1) Lib. 6. cap. 11.

(2) Lib. 3. cap. 16.

(3) Cap. 9. Art. Med.

(4) De Præstig. Demonum, 1. 3. cap. 21.

(5) Observat. lib. 10. de Morbis Cerebri, c. 15.

(6) Hippocrates lib. de insanix.

(7) Lib. 8. cap. 22. homines interdum lupos fieri; et contra.

(8) Met. lib. 1.

(9) Cap. de Man.

(10) Ulcerata crura; sitis ipsis adest immodica; pallidi; lingua sicca.

present, without further notice, and turn to a malady most extraordinary in all its phenomena, having a close connection with the St. Vitus's dance, and, by a comparison of facts, which are altogether similar, affording us an instructive subject for contemplation. We allude to the disease called Tarantism, which made its first appearance in Apulia, and thence spread over the other provinces of Italy, where, during some centuries, it prevailed as a great epidemic. In the present times it has vanished, or at least has lost altogether its original importance, like the St. Vitus's dance, lycanthropy, and witchcraft.

2.—MOST ANCIENT TRACES.—CAUSES.

The learned Nicholas Perotti* gives the earliest account of this strange disorder. Nobody had the least doubt that it was caused by the bite of the *tarantula*,† ‡ a ground-spider common in Apulia; and the fear of this insect was so general, that its bite was in all probability much oftener imagined, or the sting of some other kind of insect mistaken for it, than actually received. The word *tarantula* is apparently the same as *terrantola*, a name given by the Italians to the stellio of the old Romans, which was a kind of lizard,§ said to be poisonous, and invested by credulity with such extraordi-

remedio exulcerata.'—'Quod ad morbum ipsum attinet, si peregrinantibus fides adhibenda est, fuit olim in quibusdam regionibus, ut in Livonia, Hibernia, et aliis locis visi non infrequens, &c.'—*J. Freind. Opera omnia Med.* fol. London. 1733.

De hujus morbi antiquitatibus vide elegantem Böttigeri disputationem in Sprengelii Beitr. z. Gesch. d. Med. 11. p. 1—45.—*Blancard. Lexic. Med.* Edit. noviss. 8vo. Lipsiæ. 1832.

* Born 1430, † 1480. Cornucopiæ latinæ linguæ. Basil. 1536. fol. Comment. in primum *Martialis* Epigramma, p. 51, 52. "Est et alius stellio ex araneorum genere, qui, simili modo, ascalabotes a Græcis dicitur, et colotes et galeotis, lentiginosus in cavernulis dehiscenibus, per æstum terræ habitans. Hic majorum nostrorum temporibus in Italia visus non fuit, nunc frequens in Apulia visitur. Aliquando etiam in Tarquinensi et Corniculano agro, et vulgo similiter *tarantula* vocatur. Morsus ejus perraro interimit hominem, semistupidi tamen facit, et varie afficit, *tarantulam* vulgo appellant. Quidam cantu, auditu, aut sono ita excitantur, ut pleni lætitiæ et semper ridentes saltant, nec nisi defatigati et semineces desistant. Alii semper flentes, quasi desiderio suorum miserabilem vitam agant. Alii visa muliere, libidinis statim adore incensi, veluti furentes in eam prosiliant. Quidam ridendo, quidam flendo moriantur."

† *Lycosa Tarantula*.

‡ (Translator's note.) The *Aranea Tarantula* of Linnæus, who, after the technical description, says, "Habitat in Europa australi, potissimum Apulia, in Barbaria, in Tauria, Russiæque australis desertis, in Astracania ad montes Sibiria Altaicos usque, in Persia et reliquo Oriente, in solo præsertim argillaceo in antris, morsu quamvis interdum dolente, olimque famosum tarantismum musica sanandum excitare credito, vix unquam periculoso, cinerascens, oculus duobus prioribus rubris, thorace in areas nigras diviso in centrum concurrentes, abdomine supra fasciis muxillisque nigris."—*Systema Naturæ*. Tom. I. pars v. p. 2956.

For particulars regarding the habits of the *Lycosæ*, see Griffith's Transl. of Cuvier's Animal Kingdom. Vol. XIII. p. 427 and p. 480. et seq. The author states that M. Chabrier has published (Soc. Acad. de Lille 4^e cahier) some curious observations on the *Lycosa tarantula* of the south of France.

§ *Matthiol. Commentar. in Dioscorid.* L. II. ch. 59. p. 363. Ed. Venet. 1565. fol.

nary qualities, that, like the serpent of the Mosaic account of the Creation, it personified, in the imaginations of the vulgar, the notion of cunning, so that even the jurists designated a cunning fraud by the appellation of a "stellionatus."* Perrotti expressly assures us that this reptile was called by the Romans *tarantula*; and since he himself, who was one of the most distinguished authors of his time, strangely confounds spiders and lizards together, so that he considers the Apulian tarantula, which he ranks among the class of spiders, to have the same meaning as the kind of lizard, called *ασκηλαβας*,† it is the less extraordinary that the unlearned country-people of Apulia should confound the much dreaded ground-spider with the fabulous star-lizard,‡ and appropriate to the one the name of the other. The derivation of the word tarantula, from the city of Tarentum, or the river Thara, in Apulia,§ on the banks of which this insect is said to have been most frequently found, or at least its bite to have had the most venomous effect, seems not to be supported by authority. So much for the name of this famous spider, which, unless we are greatly mistaken, throws no light whatever upon the nature of the disease in question. Naturalists, who, possessing a knowledge of the past, should not misapply their talents by employing them in establishing the dry distinction of forms, would find here much that calls for research, and their efforts would clear up many a perplexing obscurity.

Perotti states that the tarantula, that is, the spider, so called, was not met with in Italy in former times, but that in his day it had become common, especially in Apulia, as well as in some other districts. He deserves, however, no great confidence as a naturalist, notwithstanding his having delivered lectures in Bologna on medicine and other sciences.|| He at least has neglected to prove his assertion, which is not borne out by any analagous phenomenon observed in modern times with regard to the history of the spider species. It is by no means to be admitted that the tarantula did not make its appearance in Italy before the disease ascribed to its bite became remarkable, even though tempests more violent than those unexampled storms which arose at the time of the Black Death¶ in the middle of the fourteenth century had set the insect world in motion; for the spider is little, if at all, susceptible of those cosmical influences which at times multiply locusts and other winged insects to a wonderful extent, and compel them to migrate.

The symptoms which Perotti enumerates as consequent on the bite of the tarantula agree very exactly with those described by later

* Perotti. Loc. cit.

† Probaby Lacerta Gecko, as also the synonymes, *καλωτης* and *γυλαωτης* quoted by him.

‡ Lacerta Stellio. It need scarcely be observed that the venomous nature of this harmless creature was a pure invention of Roman superstition.

§ See Athan. Kircher. Loc. cit.

|| From 1451—1458. Tiraboschi. VI. II. p. 356.

¶ Compare The Black Death. London, 1833. 12mo.

writers. Those who were bitten, generally fell into a state of melancholy, and appeared to be stupified, and scarcely in possession of their senses. This condition was, in many cases, united with so great a sensibility to music, that, at the very first tones of their favourite melodies, they sprang up, shouting for joy, and danced on without intermission, until they sunk to the ground exhausted and almost lifeless. In others, the disease did not take this cheerful turn. They wept constantly, and as if pining away with some unsatisfied desire, spent their days in the greatest misery and anxiety. Others, again, in morbid fits of love, cast their longing looks on women, and instances of death are recorded which are said to have occurred under a paroxysm of either laughing or weeping.

From this description, incomplete as it is, we may easily gather that tarantism, the essential symptoms of which are mentioned in it, could not have originated in the fifteenth century, to which Perotti's account refers; for that author speaks of it as a well known malady, and states that the omission to notice it by older writers, was to be ascribed solely to the want of education in Apulia, the only province probably where the disease at that time prevailed. A nervous disorder that had arrived at so high a degree of development, must have been long in existence, and doubtless had required an elaborate preparation by the concurrence of general causes.

The symptoms which followed the bite of venomous spiders were well known to the ancients, and had excited the attention of their best observers, who agree in their descriptions of them. It is probable that among the numerous species of their phalangium,* the Apulian tarantula is included, but it is difficult to determine this point with certainty, more especially, because in Italy the tarantula was not the only insect which caused this nervous affection, similar results being likewise attributed to the bite of the scorpion. Lividity of the whole body as well as of the countenance, difficulty of speech, tremor of the limbs, icy coldness, pale urine, depression of spirits, head-ache, a flow of tears, nausea, vomiting, sexual excitement, flatulence, syncope, dysuria, watchfulness, lethargy, even death itself, were cited by them as the consequences of being bitten by venomous spiders, and they made little distinction as to their kinds. To these symptoms we may add the strange rumour, repeated throughout the middle ages, that persons who were bitten, ejected by the bowels and kidneys, and even by vomiting, substances resembling a spider's web.

No where, however, do we find any mention made that those affected felt an irresistible propensity to dancing, or that they were accidentally cured by it. Even Constantine of Africa, who lived 500 years after Aëtius, and as the most learned physician of the

* *Aëtius*, who wrote at the end of the sixteenth century, mentions six which occur in the older works. 1. *ragion*, 2. *licos*, 3. *murmekeion*, 4. *cranocolaptes*, by others, *kephalochroustes*, 5. *sclerokephalon*, and 6. *scolckion*. Tetrabl. IV. Serm. I. ch. 18 in *Hen. Steph.* Compare *Dioscorid.* Lib. VI. ch. 42. *Matthiol.* Commentar. in *Dioscorid.* p. 1447. *Nicand.* Theriac. V. 8. 715. 755. 654.

school of Salerno, would certainly not have passed over so acceptable a subject of remark, knows nothing of such a memorable course of this disease arising from poison, and merely repeats the observations of the Greek predecessors.* Gariopontus,† a Salernian physician of the eleventh century, was the first to describe a kind of insanity, the remote affinity of which to the tarantula disease is rendered apparent by a very striking symptom. The patients in their sudden attacks behaved like maniacs, sprang up, throwing their arms about with wild movements, and, if perchance a sword was at hand, they wounded themselves and others, so that it became necessary carefully to secure them. They imagined that they heard voices, and various kinds of sounds, and if during this state of illusion, the tones of a favourite instrument happened to catch their ear, they commenced a spasmodic dance, or ran with the utmost energy which they could muster until they were totally exhausted. These dangerous maniacs, who, it would seem, appeared in considerable numbers, were looked upon as a legion of devils, but on the causes of their malady this obscure writer adds nothing further than that he believes, (oddly enough) that it may sometimes be excited by the bite of a mad dog. He calls the disease *Anteneasmus*, by which is meant no doubt the *Enthusiasmus* of the Greek physicians.‡ We cite this phenomenon as an important forerunner of tarantism, under the conviction that we have thus added to the evidence that the development of this latter must have been founded on circumstances which existed from the twelfth to the end of the fourteenth century; for the origin of tarantism itself is referable, with the utmost probability, to a period between the middle and the end of this century, and is consequently contemporaneous with that of the St. Vitus's dance (1374). The

* *Araneorum multæ species sunt. Quæ ubi mordent, faciunt multum dolorem, roborem, frigidum sudorem, et citrinum colorem. Aliquando quasi stranguriæ in urina duritiem, et virgæ extensionem, intra inguina, et genua, tetinositatem in stomacho. Linguae extensionem, ut eorum sermo non possit discerni. Fomunt humiditatem quasi araneæ telam, et ventris emollitionem similiter, etc. De communibus medico cognitu necessariis locis. Lib. VIII. cap. 22. p. 235. Basil. 1539. fol.*

† He lived in the middle of the eleventh century, and was a junior contemporary with *Constantine* of Africa. *J. Chr. Gottl. Ackermann, Regimen sanitatis Salerni sive Scholæ Salernitanæ de conservanda bona valetudine præcepta. Stendal. 1790. 8vo. p. 38.*

‡ The passage is as follows: "*Anteneasmon est species mania periculosa nimium. Irritantur tanquam maniaci, et in se manus injiciunt. Hi subito arripiuntur, cum saltatione manuum et pedum, quia intra aurium cavernas quasi voces diversas sonare falso audiunt, ut sunt diversorum instrumentorum musicæ soni; quibus delectantur, ut statim saltent, aut cursum velocem arripiant; subito arripientes gladium percutiunt se aut alios: morsibus se et alios attrahere non dubitant. Hos Latini percussores, alii dicunt dæmonis legiones esse, ut dum eos arripiunt, vexent et vulnerent. Diligentia eis imponenda est, quando istos sonos audierint, includantur, et post accessionis horas phlebotomentur, et venter eis moveatur. Cibos leves accipiant cum calida aqua, ut omnis ventositas, quæ in cerebro sonum facit, egeratur. In ipsa accessione silentium habeant. Quod si spumam per os ejecerint, vel ex canis rabidi morsu causa fuerit, intra septem dies moriuntur.*" *Garioponti, medici vetustissimi, de morborum causis, accidentibus et curationibus. Libri VIII. Basil. 1536. 8vo. L. I. ch. 2. p. 27.*

influence of the Roman Catholic religion, connected as this was in the middle ages, with the pomp of processions, with public exercises of penance, and with innumerable practices which strongly excited the imaginations of its votaries, certainly brought the mind to a very favourable state for the reception of a nervous disorder. Accordingly, so long as the doctrines of Christianity were blended with so much mysticism, these unhallowed disorders prevailed to an important extent, and even in our own days we find them propagated with the greatest facility where the existence of superstition produces the same effect in more limited districts, as it once did among whole nations. But this is not all. Every country in Europe, and Italy, perhaps more than in any other, was visited during the middle ages by frightful plagues, which followed each other in such quick succession, that they gave the exhausted people scarcely any time for recovery. The oriental bubo-plague ravaged Italy* sixteen times between the years 1119 and 1340. Small-pox and measles were still more destructive than in modern times, and recurred as frequently. St. Anthony's fire was the dread of town and country, and that disgusting disease, the leprosy, which, in consequence of the crusades, spread its insinuating poison in all directions, snatched from the paternal hearth innumerable victims who, banished from human society, pined away in lonely huts, whither they were accompanied only by the pity of the benevolent and their own despair. All these calamities, of which the moderns have scarcely retained any recollection, were heightened to an incredible degree by the Black Death,† which spread boundless devastation and misery over Italy. Men's minds were every where morbidly sensitive; and as it happens with individuals whose senses, when they are suffering under anxiety, become more irritable, so that trifles are magnified into objects of great alarm, and slight shocks, which would scarcely affect the spirits when in health, give rise in them to severe diseases, so it was with this whole nation, at all times so alive to emotions, and at that period so sorely pressed with the horrors of death.

The bite of venomous spiders, or rather the unreasonable fear of its consequences, excited at such a juncture, though it could not have done so at an earlier period, a violent nervous disorder, which, like St. Vitus's dance in Germany, spread by sympathy, increasing in severity as it took a wider range, and still further extending its ravages from its long continuance. Thus, from the middle of the fourteenth century, the furies of the *Dance* brandished their scourge over afflicted mortals; and music, for which the inhabitants of Italy, then probably for the first time, manifested susceptibility and talent, became capable of exciting ecstatic attacks in those affected, and then furnished the magical means of exorcising their melancholy.

* *J. P. Papon. De la peste, ou les époques mémorables de ce fléau. Paris. an 3. 8vo, Tome II. page 270. (1119. 1126. 1135. 1195. 1225. 1227. 1231. 1234. 1243. 1254. 1288. 1301. 1311. 1316. 1235. 1340.)*

† 1347 to 1350.

3.—INCREASE.

At the close of the fifteenth century we find that Tarantism had spread beyond the boundaries of Apulia, and that the fear of being bitten by venomous spiders had increased. Nothing short of death itself was expected from the wound which these insects inflicted, and if those who were bitten escaped with their lives, they were said to be seen pining away in a desponding state of lassitude. Many became weak-sighted or hard of hearing, some lost the power of speech, and all were insensible to ordinary causes of excitement. Nothing but the flute or the cithern afforded them relief.* At their sounds they awoke as it were by enchantment, opened their eyes, and moving slowly at first, according to the measure of the music, were, as the time quickened, gradually hurried on to the most passionate dance. It was generally observable that country people, who were rude, and ignorant of music, evinced on these occasions an unusual degree of grace, as if it had been well practised in elegant movements of the body; for it is a peculiarity in nervous disorders of this kind, that the organs of motion are in an altered condition, and are completely under the control of the overstrained spirits. Cities and villages alike resounded throughout the summer season with the notes of fifes, clarionets, and Turkish drums; and patients were every where to be met with who looked to dancing as their only remedy. Alexander ab Alexandro,† who gives this account, saw a young man in a remote village who was seized with a violent attack of Tarantism. He listened with eagerness and a fixed stare to the sound of a drum, and his graceful movements gradually became more and more violent until his dancing was converted into a succession of frantic leaps, which required the utmost exertion of his whole strength. In the midst of this over-strained exertion of mind and body the music suddenly ceased, and he immediately fell powerless to the ground, where he lay senseless and motionless until its magical effect again aroused him to a renewal of his impassioned performances.

At the period of which we are treating there was a general conviction, that by music and dancing the poison of the Tarantula was distributed over the whole body, and expelled through the skin, but that if there remained the slightest vestige of it in the vessels this became a permanent germ of the disorder, so that the dancing fits might again and again be excited *ad infinitum* by music. This belief,

* *Athanasius Kircher* gives a full account of the instruments then in use, which differed very slightly from those of our days. *Musurgia universalis, sive Ars magna consoni et dissoni*. Romæ, 1650, fol. I. p. 477.

† *Genialium dierum Libri VI.* Lugdun. Bat. 1673. 8vo. Lib. II. ch. 17. p. 398. *Alex. ab Alexandro*, a distinguished Neapolitan lawyer, lived from 1461 to 1523. The historian *Gaudentius Murela*, who became celebrated about 2536, makes only a very slight mention of the Tarantism. *Memorabilium Gaud. Merulae Novariensis opus*, &c. Lugdun. 1656. 8vo. L. III. ch. 69. p. 251.

which resembled the delusion of those insane persons who, being by artful management freed from the imagined causes of their sufferings, are but for a short time released from their false notions, was not entertained without the most injurious effects : for in consequence of it those affected necessarily became by degrees convinced of the incurable nature of their disorder. They expected relief indeed, but not a cure, from music : and when the heat of summer awakened a recollection of the dances of the preceding year, they, like the St. Vitus's dancers of the same period before St. Vitus's day, again grew dejected and misanthropic, until, by music and dancing, they dispelled the melancholy which had become with them a kind of sensual enjoyment.

Under such favourable circumstances it is clear that Tarantism must every year have made further progress. The number of those affected by it increased beyond all belief, for whoever had either actually been, or even fancied that he had been, once bitten by a poisonous spider or scorpion, made his appearance annually wherever the merry notes of the Tarantella resounded. Inquisitive females joined the throng and caught the disease, not indeed from the poison of the spider, but from the mental poison which they eagerly received through the eye ; and thus the cure of the *Tarantati* gradually became established as a regular festival of the populace, which was anticipated with impatient delight.

Without attributing more to deception and fraud than to the peculiar nature of a progressive mental malady, it may readily be conceived that the cases of this strange disorder now grew more frequent. The celebrated Matthioli*, who is worthy of entire confidence, gives his account as an eye witness. He saw the same extraordinary effects produced by music as Alexandro, for however tortured with pain, however hopeless of relief the patients appeared, as they lay stretched on the couch of sickness, at the very first sounds of those melodies which made an impression on them—but this was the case only with the Tarantellas composed expressly for the purpose—they sprung up as if inspired with new life and spirit, and, unmindful of their disorder began to move in measured gestures, dancing for hours together without fatigue, until, covered with a kindly perspiration, they felt a salutary degree of lassitude, which relieved them for a time at least, perhaps even for a whole year, from their dejection and oppressive feeling of general indisposition. Alexandro's experience of the injurious effects resulting from a sudden cessation of the music was generally confirmed by Matthioli. If the clarionets and drums ceased for a single moment, which, as the most skilful players were tired out by the patients, could not but happen occasionally, they suffered their limbs to fall listless, again sunk exhausted to the ground, and could find no solace but in a renewal of the dance. On this account care was taken to continue the music until exhaustion was produced ;

* *Petr. Andr. Matthioli Commentarii in Dioscorid.* Venet. 1565. fol Lib. II. ch. 57. p. 362.

for it was better to pay a few extra musicians, who might relieve each other, than to permit the patient, in the midst of this curative exercise, to relapse into so deplorable a state of suffering. The attack consequent upon the bite of the Tarantula, Matthioli describes as varying much in its manner. Some became morbidly exhilarated, so that they remained for a long while without sleep, laughing, dancing, and singing in a state of the greatest excitement. Others, on the contrary, were drowsy. The generality felt nausea and suffered from vomiting, and some had constant tremors. Complete mania was no uncommon occurrence, not to mention the usual dejection of spirits and other subordinate symptoms.

4.—IDIOSYNCRASIES.—MUSIC.

Unaccountable emotions, strange desires, and morbid sensual irritations of all kinds, were as prevalent as in the St. Vitus's dance, and similar great nervous maladies. So late as the sixteenth century patients were seen armed with glittering swords which, during the attack, they brandished with wild gestures, as if they were going to engage in a fencing match.* Even women scorned all female delicacy,† and adopting this impassioned demeanour did the same; and this phenomenon, as well as the excitement which the Tarantula dancers felt at the sight of any thing with metallic lustre, was quite common up to the period when, in modern times, the disease disappeared.‡

The abhorrence of certain colours and the agreeable sensations produced by others, were much more marked among the excitable Italians than was the case in the St. Vitus's dance with the more phlegmatic Germans. Red colours, which the St. Vitus's dancers detested, they generally liked, so that a patient was seldom seen who did not carry a red handkerchief for his gratification, or greedily feast his eyes on any articles of red clothing worn by the by-standers. Some preferred yellow, others black colours, of which an explanation was sought, according to the prevailing notions of the times, in the difference of temperaments.§ Others again were enraptured with green; and eye witnesses describe this rage for colours as so extraordinary, that they can scarcely find words with which to express their astonishment. No sooner did the patients obtain a sight of the

* *Athanas. Kircher. Magnes sive de Arte magnetica Opus. Rom. 1654. fol. p. 589.*

† *Joann. Juvenis de antiquitate et varia Tarentinorum fortuna Lib. VIII. Neapol. 1589. fol. Lib. II. ch. 17. p. 107.* With the exception of the statement quoted, *Juvenis* has borrowed almost every thing from *Matthioli*.

‡ *Simon. Aloys. Tudecius, physician to Queen Christine, saw a case of this kind in July. 1656. Bonet. Medicina septentrionalis collatit. Genev. 1684, fol.*

§ *Epiphan. Ferdinand. Centum historiae seu observationes et casus medici. Venet. 1621. fol. Hist. LXXXI. p. 259. Ferdinando, a physician in Messapia at the commencement of the seventeenth century, has collected, with much diligence, the various statements respecting the Tarantism of his time. He "was himself an eye witness of it," (p. 265.) and is by far the most copious of all the old writers on this subject.*

favourite colour than, new as the impression was, they rushed like infuriated animals towards the object, devoured it with their eager looks, kissed and caressed it in every possible way, and gradually resigning themselves to softer sensations, adopted the languishing expression of enamoured lovers, and embraced the handkerchief, or whatever other article it might be, which was presented to them, with the most intense ardour, while the tears streamed from their eyes as if they were completely overwhelmed by the inebriating impression on their senses.

The dancing fits of a certain Capuchin friar in Tarentum excited so much curiosity, that Cardinal Cajetano proceeded to the monastery, that he might see with his own eyes what was going on. As soon as the monk, who was in the midst of his dance, perceived the spiritual prince clothed in his red garments, he no longer listened to the Tarantella of the musicians, but with strange gestures endeavoured to approach the Cardinal, as if he wished to count the very threads of his purple robe, and to allay his intense longing by its odour. The interference of the spectators, and his own respect, prevented his touching it, and thus the irritation of his senses not being appeased, he fell into a state of such anguish and disquietude, that he presently sunk down in a swoon, from which he did not recover until the Cardinal compassionately gave him his purple cape. This he immediately seized in the greatest ecstasy, and pressed now to his breast, now to his forehead and cheeks, and then again commenced his dance as if in the frenzy of a love fit.*

At the sight of colours which they disliked, patients flew into the most violent rage, and, like the St. Vitus's dancers when they saw red objects, could scarcely be restrained from tearing the clothes of those spectators who raised in them such disagreeable sensations.†

Another no less extraordinary symptom was the ardent longing for the sea which the patients evinced. As the St. John's dancers of the fourteenth century saw, in the spirit, the heavens open and display all the splendour of the saints, so did those who were suffering under the bite of the Tarantula feel themselves attracted to the boundless expanse of the blue ocean, and lost themselves in its contemplation. Some songs, which are still preserved, marked this peculiar longing, which was moreover expressed by significant music, and was excited even by the bare mention of the sea.‡ Some, in whom this inexplicable susceptibility was carried to the greatest pitch cast themselves with blind fury into the blue waves,§ as the St.

* *Kircher. Loc. cit. pp. 588, 589.*

† *Ferdinand, 259.*

‡ For example:—

“Allu mari mi portati
Se voleti che mi sanati.
Allu mari, alla via :
Cosi m'ama la donna mia.
Allu mari allu mari :
Mentre campo, t'aggio amari.”

Kircher. Loc. cit. p. 592.—Appendix, No. V.

§ *Ferdinand. Loc. cit. p. 257.*

Vitus's dancers occasionally did into rapid rivers. This condition, so opposite to the frightful state of hydrophobia, betrayed itself in others in the pleasure afforded them by the sight of clear water in glasses. These they bore in their hands while dancing, exhibiting at the same time strange movements, and giving way to the most extravagant expressions of their feelings. They were delighted also when, in the midst of the space allotted for this exercise, more ample vessels, filled with water, and surrounded by rushes and water plants, were placed, in which they bathed their heads and arms with evident pleasure.* Others there were who rolled about on the ground, and were, by their own desire, buried up to the neck in the earth, in order to alleviate the misery of their condition, not to mention an endless variety of other symptoms which showed the perverted action of the nerves.

All these modes of relief, however, were as nothing in comparison with the irresistible charms of musical sound. Attempts had indeed been made in ancient times to mitigate the pain of sciatica,† or the paroxysms of mania,‡ by the soft melody of the flute, and, what is still more applicable to the present purpose, to remove the danger arising from the bite of vipers§ by the same means. This, however, was tried only to a very small extent. But after being bitten by the Tarantula, there was, according to popular opinion, no way of saving life except by music, and it was hardly considered as an exception to the general rule, that every now and then the bad effects of a wound were prevented by placing a ligature on the bitten limb, or by internal medicine, or that strong persons occasionally withstood the effects of the poison, without the employment of any remedies at all.¶ It was much more common, and is quite in accordance with the nature of so exquisite a nervous disease, to hear accounts of many who, when bitten by the Tarantula, perished miserably because the Tarantella, which would have afforded them deliverance, was not played to them.¶ It was customary therefore, so early as the commencement of the seventeenth century, for whole bands of musicians to traverse Italy during the summer months, and, what is quite unexampled either in ancient or modern times, the cure of the *Tarantati* in the different towns and villages was undertaken on a grand scale. This season of dancing and music was called "the women's little carnival,"** for it was women more especially who conducted the arrangements; so that throughout the whole country they saved up their spare money, for the purpose of rewarding the

* Kircher, p. 589.

† *Plin. Hist. Nat. Lib. XXVIII. ch. 2. p. 447. Ed. Hurd.*

‡ *Cael. Aurelian. Chron. Lib. I. ch. 5. p. 335. Ed. Amman.*

§ *Democritus* and *Theophrastus* made mention of it. See *Gell. Noct. Attic. Lib. IV. ch. 13.*

¶ *Ferdinand. p. 260.*

¶ *Bagliv. Loc. cit. p. 618.* From more decided statements, however, we learn, that of those who had been bitten only one or two in a thousand died. *Ferdinand. p. 255.*

** *Il carnevaletto delle donne. Bagliv. p. 617.*

welcome musicians, and many of them neglected their household employments to participate in this festival of the sick. Mention is even made of one benevolent lady (Mita Lupa) who had expended her whole fortune on this object.*

The music itself was of a kind perfectly adapted to the nature of the malady, and it made so deep an impression on the Italians, that even to the present time, long since the extinction of the disorder, they have retained the Tarantella, as a particular species of music employed for quick lively dancing. The different kinds of Tarantella were distinguished, very significantly, by particular names, which had reference to the moods observed in the patients. Whence it appears that they aimed at representing by these tunes, even the idiosyncrasies of the mind as expressed in the countenance. Thus there was one kind of Tarantella which was called "Panno rosso," a very lively impassioned style of music, to which wild dithyrambic songs were adapted; another, called "Panno verde," which was suited to the milder excitement of the senses, caused by green colours, and set to Idyllian songs of verdant fields and shady groves. A third was named "Cinque tempi;" a fourth "Moresca," which was played to a Moorish dance; a fifth, "Catena?" and a sixth, with a very appropriate designation, "Spalata," as if it was only fit to be played to dancers who were lame in the shoulder. This was the slowest and least in vogue of all.† For those who loved water they took care to select love songs, which were sung to corresponding music, and such persons delighted in hearing of gushing springs and rushing cascades and streams.‡ It is to be regretted that on this subject we are unable to give any further information, for only small fragments of songs, and a very few Tarantellas, have been preserved which belong to a period so remote as the beginning of the seventeenth, or at furthest the end of the sixteenth century.§

The music was almost wholly in the Turkish style (aria Turchesca,) and the ancient songs of the peasantry of Apulia, which increased in number annually, were well suited to the abrupt and lively notes of the Turkish drum and the shepherd's pipe. These two instruments were the favourites in the country, but others of all kinds were played in towns and villages, as an accompaniment to the dances of the patients and the songs of the spectators. If any particular melody was disliked by those affected, they indicated their displeasure by violent gestures expressive of aversion. They could not endure false notes, and it is remarkable that uneducated boors, who had never in their lives manifested any perception of the enchanting power of harmony, acquired, in this respect, an extremely refined sense of hearing, as if they had been initiated into the pro-

* *Ferdinand.* p. 254. 260.

† *Ferdinand.* p. 259. Slow music made the Tarantel dancers feel as if they were crushed: *spezzati*, *minuzzati*, p. 260.

‡ *A. Kircher.* *Loc. cit.*

§ See Appendix, No. V.

foundest secrets of the musical art.* It was a matter of every day's experience, that patients showed a predilection for certain Tarantellas, in preference to others, which gave rise to the composition of a great variety of these dances. They were likewise very capricious in their partialities for particular instruments; so that some longed for the shrill notes of the trumpet, others for the softest music produced by the vibration of strings.†

Tarantism was at its greatest height in Italy in the seventeenth century, long after the St. Vitus's dance of Germany had disappeared. It was not the natives of the country only who were attacked by this complaint. Foreigners of every colour and of every race, negroes, gipsies, Spaniards, Albanians, were in like manner affected by it.‡ Against the effects produced by the Tarantula's bite, or by the sight of the sufferers, neither youth nor age afforded any protection; so that even old men of ninety threw aside their crutches at the sound of the Tarantella, and, as if some magic potion, restorative of youth and vigour, were flowing through their veins, joined the most extravagant dancers.§ Ferdinando saw a boy five years old seized with the dancing mania,|| in consequence of the bite of a tarantula, and, what is almost past belief were it not supported by the testimony of so credible an eye-witness, even deaf people were not exempt from this disorder, so potent in its effect was the very sight of those affected, even without the exhilarating emotions caused by music.¶

Subordinate nervous attacks were much more frequent during this century than at any former period, and an extraordinary icy coldness was observed in those who were the subjects of them; so that they did not recover their natural heat until they had engaged in violent dancing.** Their anguish and sense of oppression forced from them a cold perspiration; the secretion from the kidneys was pale,†† and they had so great a dislike to every thing cold, that when water was offered them they pushed it away with abhorrence. Wine, on the contrary, they all drank willingly, without being heated by it, or in the slightest degree intoxicated.‡‡ During the whole period of the attack they suffered from spasms in the stomach, and felt a disinclination to take food of any kind. They used to abstain some time before the expected seizures from meat and from snails, which they thought rendered them more severe,§§ and their great thirst for wine may therefore, in some measure, be attributable to the want of a more nutritious diet; yet the disorder of the nerves was evidently

* *Bagliv.* Loc. cit. p. 623.

† *A. Kircher.* Loc. cit.

‡ *Ferdinand.* p. 262.

§ This is said of an old man of Avetrano, who was ninety-four years of age. p. 254. 257.

|| *Idem.* p. 261.

¶ *Ferdinando* saw a man who was hard of hearing listen with great eagerness during the dance, and endeavour to approach the drums and fifes as nearly as possible. P. 258.

** *Idem.* p. 260.

†† *Idem.* p. 256.

‡‡ *Ferdinando.* p. 260.

§§ *Idem.* p. 261.

its chief cause, and the loss of appetite, as well as the necessity for support by wine, were its effects. Loss of voice, occasional blindness,* vertigo, complete insanity, with sleeplessness, frequent weeping without any ostensible cause, were all usual symptoms. Many patients found relief from being placed in swings or rocked in cradles,† others required to be roused from their state of suffering by severe blows on the soles of their feet, others beat themselves, without any intention of making a display, but solely for the purpose of allaying the intense nervous irritation which they felt, and a considerable number were seen with their bellies swollen,‡ like those of the St. John's dancers, while the violence of the intestinal disorder was indicated in others by obstinate constipation or diarrhœa and vomiting.§ These pitiable objects gradually lost their strength and their colour, and creeping about with injected eyes, jaundiced complexions, and inflated bowels, soon fell into a state of profound melancholy, which found food and solace in the solemn tolling of the funeral bell, and in an abode among the tombs of cemeteries, as is related of the Lyeanthropes of former times.

The persuasion of the inevitable consequences of being bitten by the Tarantula, exercised a dominion over men's minds which even the healthiest and strongest could not shake off. So late as the middle of the sixteenth century, the celebrated Fracastoro found the robust bailiff of his landed estate groaning, and, with the aspect of a person in the extremity of despair, suffering the very agonies of death, from a sting in the neck, inflicted by an insect which was believed to be a Tarantula. He kindly administered, without delay, a portion of vinegar and Armenian bole, the great remedy of those days for the plague, and all kinds of animal poisons, and the dying man was, as if by a miracle, restored to life and the power of speech.|| Now, since it is quite out of the question that the bole could have any thing to do with the result in this case, notwithstanding Fracastoro's belief in its virtues, we can only account for the cure by supposing, that a confidence in so great a physician prevailed over this fatal disease of the imagination, which would otherwise have yielded to scarcely any other remedy except the Tarantella. Ferdinando was acquainted with women who, for thirty years in succession, had overcome the attacks of this disorder by a renewal of their annual dance—so long did they maintain their belief in the yet undestroyed poison of the Tarantula's bite, and so long did that mental affection continue to exist, after it had ceased to depend on any corporeal excitement.¶

Wherever we turn we find that this morbid state of mind prevailed, and was so supported by the opinions of the age, that it needed only a stimulus in the bite of the Tarantula, and the supposed certainty of its very disastrous consequences, to originate this violent

* Idem, p. 256.

† Idem, p. 258.

‡ *Ferdinando*, p. 257.

§ Idem, p. 256.

|| De Contag. Lib. III. ch. 2. p. 212. Opera Lugdun. 1591. 8vo.

¶ De Contag. p. 254.

nervous disorder. Even in Ferdinando's time there were many who altogether denied the poisonous effects of the Tarantula's bite, whilst they considered the disorder, which annually set Italy in commotion, to be a melancholy depending on the imagination.* They dearly expiated this scepticism, however, when they were led, with an inconsiderate hardihood, to test their opinions by experiment; for many of them became the subjects of severe Tarantism, and even a distinguished prelate, Jo. Baptist Quinzato, Bishop of Foligno, having allowed himself, by way of a joke, to be bitten by a Tarantula, could obtain a cure in no other way than by being, through the influence of the Tarantella, compelled to dance.† Others among the clergy, who wished to shut their ears against music, because they considered dancing derogatory to their station, fell into a dangerous state of illness by thus delaying the crises of the malady, and were obliged at last to save themselves from a miserable death by submitting to the unwelcome but sole means of cure.‡ Thus it appears that the age was so little favourable to freedom of thought, that even the most decided sceptics, incapable of guarding themselves against the recollection of what had been presented to the eye, were subdued by a poison, the effects of which they had ridiculed, and which was in itself inert in its effect.

5.—HYSTERIA.

Different characteristics of morbidly excited vitality having been rendered prominent by Tarantism in different individuals, it could not but happen that other derangements of the nerves would assume the form of this, whenever circumstances favoured such a transition. This was more especially the case with hysteria, that proteiform and mutable disorder, in which the imaginations, the superstitions, and the follies of all ages have been evidently reflected. The "*Carnevalletto delle Donne*" appeared most opportunely for those who were hysterical. Their disease received from it, as it had at other times from other extraordinary customs, a peculiar direction; so that whether bitten by the Tarantula or not, they felt compelled to participate in the dances of those affected, and to make their appearance at this popular festival, where they had an opportunity of triumphantly exhibiting their sufferings. Let us here pause to consider the kind of life which the women in Italy led. Lonely, and deprived by cruel custom of social intercourse, that fairest of all enjoyments, they dragged on a miserable existence. Cheerfulness and an inclination to sensual pleasures passed into compulsory idleness, and, in many, into black despondency.§ Their imaginations became disor-

* De Contag. p. 254.

† Idem, p. 262.

‡ Idem, p. 261.

§ (Translator's note.) "The imaginations of women are always more excitable than those of men, and they are therefore susceptible of every folly when they lead a life of strict seclusion, and their thoughts are constantly turned inwards upon themselves. Hence in orphan asylums, hospitals, and convents, the nervous disorder of one female so easily and quickly becomes the disorder of all. I have

dered—a pallid countenance and oppressed respiration bore testimony to their profound sufferings. How could they do otherwise, sunk as they were in such extreme misery, than seize the occasion to burst forth from their prisons, and alleviate their miseries by taking part in the delights of music. Nor should we here pass unnoticed a circumstance which illustrates, in a remarkable degree, the psychological nature of hysterical sufferings, namely, that many chlorotic females, by joining the dancers at the Carnevaletto, were freed from their spasms and oppression of breathing for the whole year, although the corporeal cause of their malady was not removed.* After such a result, no one could call their self-deception a mere imposture, and unconditionally condemn it as such.

This numerous class of patients certainly contributed not a little to the maintenance of the evil, for their fantastic sufferings, in which dissimulation and reality could scarcely be distinguished even by themselves, much less by their physicians, were imitated, in the same way as the distortions of the St. Vitus' dancers, by the impostors of that period. It was certainly by these persons also that the number of subordinate symptoms was increased to an endless extent, as may be conceived from the daily observation of hysterical patients, who, from a morbid desire to render themselves remarkable, deviate from the laws of moral propriety. Powerful sexual excitement had often the most decided influence over their condition. Many of them exposed themselves in the most indecent manner, tore their hair out by the roots, with howling and gnashing of their teeth; and when, as was sometimes the case, their unsatisfied passion hurried them on to a state of frenzy, they closed their existence by self-destruction; it being common at that time for these unfortunate beings to precipitate themselves into the wells.†

It might hence seem that, owing to the conduct of patients of this description, so much of fraud and falsehood would be mixed up with

read in a good medical work that a nun, in a very large convent in France, began to mew like a cat; shortly afterwards other nuns also mewed. At last all the nuns mewed together every day at a certain time for several hours together. The whole surrounding Christian neighbourhood heard, with equal chagrin and astonishment, this daily cat-concert, which did not cease until all the nuns were informed that a company of soldiers were placed by the police before the entrance of the convent, and that they were provided with rods, and would continue whipping them until they promised not to mew any more.

“But of all the epidemics of females which I myself have seen in Germany, or of which the history is known to me, the most remarkable is the celebrated Convent-epidemic of the fifteenth century, which Cardan describes, and which peculiarly proves what I would here enforce. A nun in a German nunnery fell to biting all her companions. In the course of a short time all the nuns of this convent began biting each other. The news of this infatuation among the nuns soon spread, and it now passed from convent to convent throughout a great part of Germany, principally Saxony and Brandenburg. It afterwards visited the nunneries of Holland, and at last the nuns had the biting mania even as far as Rome.”—*Zimmermann on Solitude*, Vol. II. Leipsig. 1784.

* *Georg. Baglivi*, Diss. de Anatome, morsu et effectibus Tarantulæ. pp. 616, 617. Opp. Lugdun. 1710. 4to.

† *Ferdinando*, p. 257.

the original disorder, that having passed into another complaint, it must have been itself destroyed. This, however, did not happen in the first half of the seventeenth century ; for as a clear proof that Tarantism remained substantially the same and quite unaffected by Hysteria, there were in many places, and in particular at Messapia, fewer women affected than men, who in their turn were, in no small proportion, led into temptation by sexual excitement.* In other places, as for example at Brindisi, the case was reversed, which may, as in other complaints, be in some measure attributable to local causes. Upon the whole it appears from concurrent accounts that women by no means enjoyed the distinction of being attacked by Tarantism more frequently than men.

It is said that the cicatrix of the tarantula bite, on the yearly or half yearly return of the fit, became discoloured,† but on this point the distinct testimony of good observers is wanting to deprive the assertion of its utter improbability.

It is not out of place to remark here, that about the same time that Tarantism attained its greatest height in Italy, the bite of venomous spiders was more feared in distant parts of Asia likewise, than it had ever been within the memory of man. There was this difference, however, that the symptoms supervening on the occurrence of this accident were not accompanied by the Apulian nervous disorder which, as has been shown in the foregoing pages, had its origin rather in the melancholic temperament of the inhabitants of the south of Italy, than in the nature of the tarantula poison itself. This poison is therefore doubtless to be considered only as a remote cause of the complaint, which but for that temperament, would be inadequate to its production. The Persians employed a very rough means of counteracting the bad consequences of a poison of this sort. They drenched the wounded person with milk, and then, by violent rotatory motion in a suspended box, compelled him to vomit.‡

6 —DECREASE.

The Dancing Mania, arising from the tarantula bite, continued, with all those additions of self-deception, and of the dissimulation which is such a constant attendant on nervous disorders of this kind, through the whole course of the seventeenth century. It was indeed gradually on the decline, but up to the termination of this period, showed such extraordinary symptoms, that Baglivi, one of the best physicians of that time, thought he did a service to science by making them the subject of a dissertation.§ He repeats all the observations of Ferdinando, and supports his own assertions by the experience of his

* *Ferdinando*. pp. 256, 257, 258.

† *Ferdinando*, p. 258.

‡ *Adam Olearius*, Vermehrte Moscovitische und Persianische Reisebeschreibung. Travels in Muscovy and Persia. Schleswig, 1663. fol. Book IV. p. 496.

§ *Georg. Baglivi*. Dissertatio VI. de Anatome, morsu et effectibus Tarantulæ (written in 1595). Opera omnia, Lugdun. 1710. 4to. p. 599.

father, a physician at Lecce, whose testimony, as an eye-witness, may be admitted as unexceptionable.*

The immediate consequences of the Tarantula bite, the supervening nervous disorder, and the aberrations and fits of those who suffered from Hysteria, he describes in a masterly style, nor does he ever suffer his credulity to diminish the authenticity of his account, of which he has been unjustly accused by later writers.

Finally, Tarantism has declined more and more in modern times, and is now limited to single cases. How could it possibly have maintained itself unchanged in the eighteenth century, when all the links which connected it with the middle ages had long since been snapped asunder? Imposture† grew more frequent, and wherever the

* This physician once saw three patients, who were evidently suffering from a malignant fever, and whose illness was attributed by the by-standers to the bite of the Tarantula, who were forced to dance by having music played to them. One of them died on the spot, and the two others very shortly after. Ch. 7. p. 616.

† (Translator's note.) Among the instances in which imposture successfully taxes popular credulity, perhaps there is none more remarkable at the present day than that afforded by the *Psylli* of Egypt, a country which furnishes another illustration of our author's remark at the commencement of the next chapter. This sect, according to the testimony of modern writers, continues to exhibit the same strange spectacles as the ancient serpent-eaters of Cyrene, described by Strabo, 17 Dio. 51. c. 14. Lucan, 9. v. 891. 937. Herodot. 4. c. 173. Paus. 9. c. 28. Savary states that he witnessed a procession at Rosetta, where a band of these seeming madmen, with bare arms and wild demeanour, held enormous serpents in their hands, which writhed round their bodies and endeavoured to make their escape. These *Psylli*, grasping them by the neck, tore them with their teeth and ate them up alive, the blood streaming down from their polluted mouths. Others of the *Psylli* were striving to wrest their prey from them, so that it seemed a struggle among them who should devour a serpent. The populace followed them with amazement, and believed their performance to be miraculous. Accordingly they pass for persons inspired, and possessed by a spirit who destroys the effect of the serpent.

Sonnini, though not so fortunate as to witness a public exhibition of such performances, yet gives the following interesting account of what he justly calls a remarkable specimen of the extravagance of man. After adverting to the superstitious origin of the sect, he goes on to say that a Saadi, or serpent-eater, came to his apartment accompanied by a priest of his sect. The priest carried in his bosom a large serpent of a dusky green and copper colour, which he was continually handling; and after having recited a prayer, he delivered it to the Saadi. The narrative proceeds:—"With a vigorous hand the Saadi seized the serpent, which twisted itself round his naked arm. He began to appear agitated; his countenance was discomposed; his eyes rolled; he uttered terrible cries, bit the animal in the head, and tore off a morsel, which we saw him chew and swallow. On this his agitation became convulsive; his howlings were redoubled, his limbs writhed, his countenance assumed the features of madness, and his mouth, extended by terrible grinaces, was all in a foam. Every now and then he devoured a fresh morsel of the reptile. Three men endeavoured to hold him, but he dragged them all three round the chamber. His arms were thrown about with violence on all sides, and struck every thing within their reach. Eager to avoid him, M. Forneti and I were obliged sometimes to cling to the wall, to let him pass and escape his blows. We could have wished the madman far away. At length the priest took the serpent from him, but his madness and convulsions did not cease immediately; he bit his hands, and his fury continued. The priest then

disease still appeared in its genuine form, its chief cause, namely, a peculiar cast of melancholy, which formerly had been the temperament of thousands, was now possessed only occasionally by unfortunate individuals. It might therefore not unreasonably be maintained, that the Tarantism of modern times bears nearly the same relation to the original malady, as the St. Vitus's dance which still exists, and certainly has all along existed, bears, in certain cases, to the original dancing mania of the dancers of St. John.

To conclude. Tarantism, as a real disease, has been denied *in toto*, and stigmatized as an imposition, by most physicians and naturalists, who in this controversy have shown the narrowness of their views and their utter ignorance of history. In order to support their opinion they have instituted some experiments, apparently favourable to it, but under circumstances altogether inapplicable, since, for the most part, they selected, as the subjects of them, none but healthy men, who were totally uninfluenced by a belief in this once so dreaded disease. From individual instances of fraud and dissimulation, such as are found in connection with most nervous affections, without rendering their reality a matter of any doubt, they drew a too hasty conclusion respecting the general phenomenon, of which they appeared not to know, that it had continued for nearly four hundred years, having originated in the remotest periods of the middle ages. The most learned and the most acute among these sceptics is Sarao the Neapolitan.* His reasonings amount to this, that he considers the disease to be a very marked form of melancholy, and compares the effect of the tarantula bite upon it to stimulating, with spurs, a horse which is already running. The reality of that effect he thus admits, and therefore directly confirms what in appearance only he denies.† By shaking the already vacillating belief in this disorder he is said to have actually succeeded in rendering it less frequent, and in setting bounds to imposture;‡ but this no more disproves the reality of its existence, than the oft-repeated detection of imposition has been able, in modern times, to banish magnetic sleep from the circle of natural phenomena, though such detection has, on its side, rendered more rare the incontestible effects of animal mag-

grasped him in his arms, passed his hand gently down his back, lifted him from the ground, and recited some prayers. By degrees his agitation diminished, and subsided into a state of complete lassitude, in which he remained a few moments.

"The Turks who were present at this ridiculous and disgusting ceremony were firmly persuaded of the reality of this religious fury; and it is very certain that, whether it were reality or imposture, it is impossible to see the transports of rage and madness exhibited in a more striking manner, or have before your eyes a man more calculated to inspire terror."—*Hunter's Translation of Sonnini's Travels*, 8vo. 1799.

* *Franc. Serao*, della Tarantola o vero Falangio di Puglia. Napol. 1742—See *Thom. Fusani*, De vita, muniis et scriptis *Franc. Serai*, &c. Commentarius. Neapol. 1784. 8vo. p. 76. et seq.

† *Idem*, p. 88.

‡ *Idem*, p. 89.

netism. Other physicians and naturalists* have delivered their sentiments on Tarantism, but as they have not possessed an enlarged knowledge of its history, their views do not merit particular exposition. It is sufficient for the comprehension of every one, that we have presented the facts freed from all extraneous speculation.

* *H. Mercurialis*, de Venenis et Morbis Venenosis. Venet. 1601. 4to. Lib. II. ch. 6. p. 39. repeats the silly tale that, those who were bitten continued, during their paroxysm, to be occupied with whatever they had been engaged in at the time they received the bite, and proves, by a fact which had been communicated to him, that already, in the sixteenth century, they were able to distinguish impostors from those who had been really bitten. *H. Cardani*, de Subtilitate, Lib. XXI. Basil, 1560. 8vo. Lib. IX. p. 635. The baneful effect of the venom of the Tarantula was obviated, not so much by music as by the great exertion used in dancing. Compare *J. Cas. Scaliger*, Exoteric. Exercitt. Lib. XV. de Subtilitate. Francof. 1612. 8vo. Ex. 185. p. 610.—*J. M. Fehr*, Anchora sacra vel Scorzonera. Jen. 1666. 8vo. p. 127. From *Alexander ab Alexandro*, and several later writers.—*Stalpart van der Wiel*, Observatt. rarior. Lugdun. Bat. 1687. 8vo. Cent. 1. Obs. C. p. 424. According to *Kircher*.—*Rod. a. Castro*, Medicus politicus. Hamburg, 1614. 4to. Lib. IV. ch. 16. p. 275. according to *Matthioli*.—*D. Cirillo*, Some account of the Tarantula, Philosoph. Trans. Vol. LX. 1770. describes Tarantism as a common imposture. So also does *J. A. Unzer*, The Physician, Vol. II. pp. 473. 640. vol. III. pp. 466. 526. 528, 529, 530. 533. 553; likewise *A. F. Büsching*, Eigene Gedanken und gesammelte Nachrichten von der Tarantel, welche zur gänzlichen Vertilgung des Vorurtheils von der Schädlichkeit ihres Bisses, und der Heilung desselben durch Musik, dienlich und hinlänglich sind. Observations and statements respecting the Tarantel, which suffice entirely to set aside the prejudice respecting the venom of its bite, as also its cure by music. Berlin, 1772. 8vo. A very shallow criticism.—*P. Forrest*, Observatt. et Curatt. Medicinal. Lib. XXX. XXXI. et XXXII. Francof. 1509. fol. Ob. XII. p. 41. diligently compiled from his predecessors.—*Phil. Camerar*, Operæ horarum subcisivarum. Francof. 1658. 4to. Cent. II. cap. 81. p. 317.—*R. Mead*, a mechanical account of poisons: London, 1747. 8vo. p. 99. contends for the reality of Tarantism; with *R. Boyle*, an essay of the great effects of even languid and unheeded motion, &c. London, 1685. ch. VI.—So also *J. F. Cartheuser*, Fundamenta pathologiæ et therapiæ. Francof. a. V. 1758. 8vo. Tom. I. p. 334. *Th. Willis* de morbis convulsivis, cap. VII. p. 492. Opp. Lugdun. 1651. 4to. according to *Gassendi*, *Ferdinando*, *Kircher* and others.—**L. Valetta*, de Phalangio Apulo opusculum. Neapol. 1706.—*Thom. Cornelio* (professor at Naples in the middle of the seventeenth century.) Letter to *J. Dodington* concerning some observations made of persons pretending to be stung by Tarantulas. Phil. Transactions, No. 83. p. 4066. 1672. considers Tarantism to be St. Vitus's dance.—*Jos. Lanzoni*, de Venenis, cap. 57. p. 140. Opp. Lausann. 1738. 4to. Tom. I. mostly from *Baglivi*.—*J. Schenck*, a *Grafenberg*. Observatt. Medicar. Lib. VII. Obs. 122. p. 792. Tom. II. Ed. Francof. 1600. 8vo. was himself an eye-witness.—**Wolfg Senguerd*, Tractatus physicus de Tarantula. Lugd. Bat. 1668. 12mo.—**Herm. Grube*, De ictu Tarantulæ et vi musicis in eius curatione conjecturæ physico-mediciæ. Francof. 1679. 8vo.—*Athan. Kircher*, Musurgia universalis. Rom. 1650. fol. Tom. II. IX. ch. 4. p. 218.—*M. Köhler*, in den Svenska Vetenskaps. Academiens Handlingar. 1758. p. 29. Transactions of the Swedish Academy of Sciences.—Berlin Collection for the Furtherance of the Science of Medicine. Vol. V. No. 1. p. 53. 1772.—*Burserii* Institutiones medic. pract. tom. 3. p. 1. cap. 7. § 219. p. 159. ed. *Hecker*.—*J. S. Halle*, Gifthistorie, History of Poisons, Berlin, 1786. 8vo.—*Blumenbach*, Naturgeschichte, Natural History, p. 412.—*E. F. Leonhardt*, Diss. de Tarantismo, Berol, 1827, 8vo. and many others.

III. — DANCING MANIA

IN

ABYSSINIA.

1.—TIGRETIER.

BOTH the St. Vitus's dance and Tarantism belonged to the ages in which they appeared. They could not have existed under the same latitude at any other epoch, for at no other period were the circumstances which prepared the way for them combined in a similar relation to each other, and the mental as well as corporeal temperaments of nations, which depend on causes such as have been stated, are as little capable of renewal as the different stages of life in individuals. This gives so much the more importance to a disease, but cursorily alluded to in the foregoing pages, which exists in Abyssinia, and which nearly resembles the original mania of the St. John's dancers, inasmuch as it exhibits a perfectly similar ecstacy, with the same violent effect on the nerves of motion. It occurs most frequently in the Tigrè country, being thence called Tigretier, and is probably the same malady which is called in the Æthiopian language Astarägaza.* On this subject we will introduce the testimony of Nathaniel Pearce,† an eye-witness, who resided nine years in Abyssinia. "The Tigretier," says he, "is more common among the women than among the men. It seizes the body as if with a violent fever, and from that turns to a lingering sickness, which reduces the patients to skeletons, and often kills them, if the relations cannot procure the proper remedy. During this sickness their speech is changed to a kind of stuttering, which no one can understand but those afflicted with the same disorder. When the relations find the malady to be the real *tigretier*, they join together to defray the expenses of curing it; the first remedy they in general attempt, is to

* This may, however, be considered merely as a conjecture, founded upon the following passage in *Ludolf's Lexicon Æthiopic.* Ed. 2da. Francof. 1699. fol. p. 142. *Astaragaza*, de vexatione quadam diabolica accipitur. Marc. i. 26. ix. 18. Luc. ix. 39. Graæus habet *σταγάρτω*, vellicare, discerpere. *Sed Æthiopes, teste Gregorio, pro morbo quodam accipiunt, quo quis perpetuo pedes agitare et quasi calcitrare cogitur.* Fortassis est Saltatio S. Viti, vulgo S. Veits Tanz.

† The life and adventures of *Nathaniel Pearce*, written by himself, during a residence in Abyssinia, from the years 1810 to 1819. London, 1831. 8vo. Vol. I. ch. ix. p. 290.

procure the assistance of a learned Dofter, who reads the Gospel of St. John,* and drenches the patient with cold water daily for the space of seven days—an application that very often proves fatal. The most effectual cure, though far more expensive than the former, is as follows :—The relations hire, for a certain sum of money, a band of trumpeters, drummers and fifers, and buy a quantity of liquor ; then all the young men and women of the place assemble at the patient's house, to perform the following most extraordinary ceremony.

“ I was once called in by a neighbour to see his wife, a very young woman, who had the misfortune to be afflicted with this disorder : and the man being an old acquaintance of mine, and always a close comrade in the camp, I went every day, when at home, to see her, but I could not be of any service to her, though she never refused my medicines. At this time, I could not understand a word she said, although she talked very freely, nor could any of her relations understand her. She could not bear the sight of a book or a priest, for at the sight of either she struggled, and was apparently seized with acute agony, and a flood of tears, like blood mingled with water, would pour down her face from her eyes. She had laid three months in this lingering state living upon so little that it seemed not enough to keep a human body alive ; at last, her husband agreed to employ the usual remedy, and, after preparing for the maintenance of the band, during the time it would take to effect the cure, he borrowed from all his neighbours their silver ornaments, and loaded her legs, arms, and neck with them.

“ The evening that the band began to play, I seated myself close by her side as she lay upon the couch, and, about two minutes after the trumpets had begun to sound, I observed her shoulders begin to move, and soon afterwards her head and breast, and in less than a quarter of an hour, she sat upon her couch. The wild look she had, though sometimes she smiled, made me draw off to a greater distance, being almost alarmed to see one nearly a skeleton move with such strenght ; her head, neck, shoulders, hands and feet, all made a strong motion to the sound of music, and in this manner she went on by degrees, until she stood up on her legs upon the floor. Afterwards she began to dance, and at times to jump about, and at last, as the music and noise of the singers increased, she often sprang three feet from the ground. When the music slackened, she would appear quite out of temper, but when it became louder, she would smile and be delighted. During this exercise, she never showed the least symptom of being tired, though the musicians were thoroughly exhausted ; and when they stopped to refresh themselves by drinking and resting a little, she would discover signs of discontent.

“ Next day, according to the custom in the cure of this disorder,

* The Evangelist and *St. John* the Baptist have been at all times, and among all nations, confounded with each other, so that the relation of the latter to one and the same phenomenon in such different ages and climates is very probable.

she was taken into the market-place, where several jars of *maize* or *tsug* were set in order by the relations, to give drink to the musicians and dancers. When the crowd had assembled and the music was ready, she was brought forth and began to dance and throw herself into the maddest postures imaginable, and in this manner she kept on the whole day. Towards evening, she began to let fall her silver ornaments from her neck, arms, and legs, one at a time, so that in the course of three hours, she was stripped of every article. A relation continually kept going after her as she danced, to pick up the ornaments, and afterwards delivered them to the owners from whom they were borrowed. As the sun went down, she made a start with such swiftness, that the fastest runner could not come up with her, and, when at the distance of about two hundred yards, she dropped on a sudden, as if shot. Soon afterwards, a young man, on coming up with her, fired a matchlock over her body, and struck her upon the back with the broad side of his large knife, and asked her name, to which she answered as when in her common senses, a sure proof of her being cured; for during the time of this malady, those afflicted with it never answer to their Christian names. She was now taken up in a very weak condition and carried home, and a priest came and baptised her again in the name of the Father, Son, and Holy Ghost, which ceremony concluded her cure. Some are taken in this manner to the market place for many days before they can be cured, and it sometimes happens that they cannot be cured at all. I have seen them in these fits dance with a *bruly*, or bottle of maise, upon their heads, without spilling the liquor, or letting the bottle fall, although they have put themselves into the most extravagant postures.

“I could not have ventured to write this from hearsay, nor could I conceive it possible, until I was obliged to put this remedy in practice upon my own wife,* who was seized with the same disorder, and then I was compelled to have a still nearer view of this strange disorder. I at first thought that a whip would be of some service, and one day attempted a few strokes, when unnoticed by any person, we being by ourselves, and I having a strong suspicion that this ailment sprang from the weak minds of women, who were encouraged in it for the sake of the grandeur, rich dress, and music which accompany the cure. But how much was I surprised, the moment I struck a light blow, thinking to do good, to find that she became like a corpse, and even the joints of her fingers became so stiff that I could not straighten them; indeed, I really thought she was dead, and immediately made it known to the people in the house that she had fainted, but did not tell them the cause, upon which they immediately brought music, which I had for many days denied them, and which soon revived her; and I then left the house to her relations to cure her at my expense, in the manner I have before mentioned, though it took a much longer time to cure my wife than the woman I have

* She was a native Greek.

just given an account of. One day I went privately, with a companion, to see my wife dance, and kept at a short distance, as I was ashamed to go near the crowd. On looking steadfastly upon her, while dancing or jumping, more like a deer than a human being, I said that it certainly was not my wife; at which my companion burst into a fit of laughter, from which he could scarcely refrain all the way home. Men are sometimes afflicted with this dreadful disorder, but not frequently. Among the Amhara and Galla it is not so common."

Such is the account of Pearce, who is every way worthy of credit, and whose lively description renders the traditions of former times respecting the St. Vitus's dance and Tarantism intelligible, even to those who are sceptical respecting the existence of a morbid state of the mind and body of the kind described, because, in the present advanced state of civilization among the nations of Europe, opportunities for its development no longer occur. The credibility of this energetic, but by no means ambitious man, is not liable to the slightest suspicion, for owing to his want of education, he had no knowledge of the phenomena in question, and his work evinces throughout his attractive and unpretending impartiality.

Comparison is the mother of observation, and may here elucidate one phenomenon by another—the past by that which still exists. Oppression, insecurity, and the influence of a very rude priesthood, are the powerful causes which operated on the Germans and Italians of the middle ages, as they now continue to operate on the Abyssinians of the present day. However these people may differ from us in their descent, their manners, and their customs, the effects of the above-mentioned causes are the same in Africa as they were in Europe, for they operate on man himself, independently of the particular locality in which he may be planted; and the condition of the Abyssinians of modern times is, in regard to superstition, a mirror of the condition of the European nations in the middle ages. Should this appear a bold assertion, it will be strengthened by the fact, that in Abyssinia two examples of superstitions occur, which are completely in accordance with occurrences of the middle ages that took place contemporarily with the dancing mania. *The Abyssinians have their Christian flagellants, and there exists among them a belief in a Zoomorphism, which presents a lively image of the Lycanthropy of the middle ages.* Their flagellants are called Zackarys. They are united into a separate Christian fraternity, and make their processions through the towns and villages with great noise and tumult, scourging themselves till they draw blood and wounding themselves with knives.* They boast that they are descendants of St. George. It is precisely in Tigrè, the country of the Abyssinian dancing mania, where they are found in the greatest

* Idem, p. 289. Compare "The Black Death," by the Author. London 1833. 12mo. p. 86.—*E. G. Förstemann*, Die christlichen Geisslergesellschaften. The Christian Societies of Flagellants. Halle, 1828. 8vo.

numbers, and where they have, in the neighbourhood of Axum, a church of their own, dedicated to their patron saint, *Oun Arvel*. Here there is an ever-burning lamp, and they contrive to impress a belief that this is kept alight by supernatural means. They also here keep a holy water, which is said to be a cure for those who are affected by the dancing mania.

The Abyssinian Zoomorphism is a no less important phenomenon, and shows itself in a manner quite peculiar. The blacksmiths and potters form, among the Abyssinians, a society or caste called in Tigrè *Tebbib*, and in Amhara *Buda*, which is held in some degree of contempt, and excluded from the sacrament of the Lord's Supper, because it is believed that they can change themselves into hyænas and other beasts of prey, on which account they are feared by every body, and regarded with horror. They artfully contrive to keep up this superstition, because by this separation they preserve a monopoly of their lucrative trades, and as in other respects they are good Christians, (but few Jews or Mahomedans live among them) they seem to attach no great consequence to their excommunication. As a badge of distinction, they wear a golden ear-ring, which is frequently found in the ears of hyænas that are killed, without its having ever been discovered how they catch these animals, so as to decorate them with this strange ornament, and this removes, in the minds of the people, all doubt as to the supernatural powers of the smiths and potters.* To the budas is also ascribed the gift of enchantment, especially that of the influence of the evil eye.† They nevertheless live unmolested, and are not condemned to the flames by fanatical priests, as the Lycanthropes were in the middle ages.

IV. — SYMPATHY.

IMITATION—compassion—sympathy, these are imperfect designations for a common bond of union among human beings—for an instinct which connects individuals with the general body, which embraces with equal force, reason and folly, good and evil, and diminishes the praise of virtue as well as the criminality of vice. In this impulse there are degrees, but no essential differences, from the first intellectual efforts of the infant mind, which are in a great measure based on imitation, to that morbid condition of the soul in which the sensible impression of a nervous malady fetters the mind, and finds its way, through the eye, directly to the diseased texture,

* *Pearce. Loc. cit.*

† Among the ancient Greeks *βασκνισις*. This superstition is more or less developed among all the nations of the earth, and has not yet entirely disappeared from Europe.

as the electric shock is propagated by contact from body to body. To this instinct of imitation, when it exists in its highest degree, is united a loss of all power over the will, which occurs as soon as the impression on the senses has become firmly established, producing a condition like that of small animals when they are fascinated by the look of a serpent. By this mental bondage, morbid sympathy is clearly and definitely distinguished from all subordinate degrees of this instinct, however closely allied the imitation of a disorder may seem to be to that of a mere folly, an absurd fashion, an awkward habit in speech and manner, or even of a confusion of ideas. Even these latter imitations, however, directed as they are to foolish and pernicious objects, place the self-independence of the greater portion of mankind in a very doubtful light, and account for their union into a social whole. Still more nearly allied to morbid sympathy than the imitation of enticing folly, although often with a considerable admixture of the latter, is the diffusion of violent excitements, especially those of a religious or political character, which have so powerfully agitated the nations of ancient and modern times, and which may, after an incipient compliance,* pass into a total loss of power over the will, and an actual disease of the mind. Far from us be the attempt to awaken all the various tones of this chord, whose vibrations reveal the profound secrets which lie hid in the inmost recesses of the soul. We might well want powers adequate to so vast an undertaking. Our business here is only with that morbid sympathy by the aid of which the dancing mania of the middle ages grew into a real epidemic. In order to make this apparent by comparison, it may not be out of place, at the close of this inquiry, to introduce a few striking examples :—

1. “At a cotton manufactory at Hodden Bridge, in Lancashire, a girl, on the 15th of February, put a mouse into the breast of another girl, who had a great dread of mice. The girl was immediately thrown into a fit, and continued in it, with the most violent convulsions, for twenty-four hours. On the following day, three more girls were seized in the same manner; and on the 17th, six more. By this time, the alarm was so great, that the whole work, in which 200 or 300 were employed, was totally stopped, and an idea prevailed that a particular disease had been introduced by a bag of cotton opened in the house. On Sunday the 18th, Dr. St. Clare was sent for from Preston; before he arrived three more were seized, and during that night and the morning of the 19th, eleven more, making in all twenty-four. Of these, twenty-one were young women, two were girls of about ten years of age, and one man, who had been much fatigued with holding the girls. Three of the number lived about two miles from the place where the disorder first broke out, and three at another factory at Clitheroe, about five miles distant, which last and two more were infected entirely from report, not having seen the other patients, but like them and the rest of the

* *Paracelsus.*

country, strongly impressed with the idea of the plague being caught from the cotton. The symptoms were anxiety, strangulation, and very strong convulsions ; and these were so violent as to last without any intermission from a quarter of an hour to twenty-four hours, and to require four or five persons to prevent the patients from tearing their hair and dashing their heads against the floor or walls. Dr. St. Clare had taken with him a portable electrical machine, and by electric shocks the patients were universally relieved without exception. As soon as the patients and the country were assured that the complaint was merely nervous, easily cured, and not introduced by the cotton, no fresh person was affected. To dissipate their apprehensions still further, the best effects were obtained by causing them to take a cheerful glass and join in a dance. On Tuesday the 20th, they danced, and the next day they were all at work, except two or three, who were much weakened by their fits.*

The occurrence here described is remarkable on this account, that there was no important predisposing cause for convulsions in these young women, unless we consider as such their miserable and confined life in the work-rooms of a spinning manufactory. It did not arise from enthusiasm, nor is it stated that the patients had been the subjects of any other nervous disorders. In another perfectly analogous case, those attacked were all suffering from nervous complaints, which roused a morbid sympathy in them at the sight of a person seized with convulsions. This, together with the supervention of hysterical fits, may aptly enough be compared to Tarantism.

2. "A young woman of the lowest order, twenty-one years of age, and of a strong frame, came on the 13th of January, 1801, to visit a patient in the Charité hospital at Berlin, where she had herself been previously under treatment for an inflammation of the chest with tetanic spasms, and immediately on entering the ward, fell down in strong convulsions. At the sight of her violent contortions, six other female patients immediately became affected in the same way, and by degrees eight more were in like manner attacked with strong convulsions. All these patients were from sixteen to twenty-five years of age, and suffered without exception, one from spasms in the stomach, another from palsy, a third from lethargy, a fourth from fits with consciousness, a fifth from catalepsy, a sixth from syncope, &c. The convulsions, which alternated in various ways with tonic spasms, were accompanied by loss of sensibility, and were invariably preceded by languor with heavy sleep, which was followed by the fits in the course of a minute or two ; and it is remarkable, that in all these patients their former nervous disorders, not excepting paralysis, disappeared, returning, however, after the subsequent removal of their new complaint. The treatment, during the course of which, two of the nurses, who were young women, suffered similiar

* Gentleman's Magazine, 1787, March, p. 268.—*F. B. Oslander*, Ueber die Entwickelungskrankheiten in den Blüthenjahren des weiblichen Geschlechts. On the disorders of young women, &c. Tübingen, 1820, Vol. I. p. 10.

attacks, was continued for four months. It was finally successful, and consisted principally in the administration of opium, at that time the favourite remedy.*

Now, every species of enthusiasm, every strong affection, every violent passion, may lead to convulsions, to mental disorders—to a concussion of the nerves, from the sensorium to the very finest extremities of the spinal cord. The whole world is full of examples of this afflicting state of turmoil, which, when the mind is carried away by the force of a sensual impression which destroys its freedom, is irresistibly propagated by imitation. Those who are thus infected do not spare even their own lives, but, as a hunted flock of sheep will follow their leader and rush over a precipice, so will whole hosts of enthusiasts, deluded by their infatuation, hurry on to a self-inflicted death. Such has ever been the case, from the days of Milesian virgins to the modern associations for self-destruction.† Of all enthusiastic infatuations, however, that of religion is the most fertile in disorders of the mind as well as of the body, and both spread with the greatest facility by sympathy. The history of the church furnishes innumerable proofs of this, but we need go no further than the most recent times.

3. In a Methodist chapel at Redruth, a man during divine service cried out with a loud voice, “What shall I do to be saved?” at the same time manifesting the greatest uneasiness and solicitude respecting the condition of his soul. Some other members of the congregation, following his example, cried out in the same form of words, and seemed shortly after to suffer the most excruciating bodily pain. This strange occurrence was soon publicly known, and hundreds of people, who had come thither, either attracted by curiosity, or a desire, from other motives, to see the sufferers, fell into the same state. The chapel remained open for some days and nights, and from that point the new disorder spread itself with the rapidity of lightning, over the neighbouring towns of Camborne, Helston, Truro, Penryn, and Falmouth, as well as over the villages in the vicinity. Whilst thus advancing, it decreased in some measure at the place where it had first appeared, and it confined itself throughout to the Methodist chapels. It was only by the words which have been mentioned that it was excited, and it seized none but people of the lowest education. Those who were attacked betrayed the greatest anguish, and fell into convulsions; others cried out, like persons possessed, that the Almighty would straightway pour out his wrath upon them, that the wailings of tormented spirits rang in their ears, and that they saw hell open to receive them. The clergy, when in the course of their sermons, they perceived that persons were thus seized, earnestly exhorted them

* This account is given by *Fritze*. *Hufeland's Journal der practischen Heilkunde*, Vol. XII. 1801. Part I. p. 110. *Hufeland's Journal of Practical Medicine*.

† Compare *J. G. Zimmermann*, *Ueber die Einsamkeit*. Leipzig, 1784. 8vo. Vol. II. ch. 6. p. 77. On Solitude.—*J. P. Falret*, *De l'hypochondrie et du suicide*. Paris, 1822. 8vo. and others.

to confess their sins, and zealously endeavoured to convince them that they were by nature enemies to Christ; that the anger of God had therefore fallen upon them, and that if death should surprise them in the midst of their sins, the eternal torments of hell would be their portion. The over-excited congregation upon this repeated their words, which naturally must have increased the fury in their convulsive attacks. When the discourse had produced its full effect, the preacher changed his subject, reminded those who were suffering, of the power of the Saviour, as well as of the grace of God, and represented to them in glowing colours the joys of heaven. Upon this, a remarkable reaction sooner or later took place. Those who were in convulsions felt themselves raised from the lowest depths of misery and despair to the most exalted bliss, and triumphantly shouted out that their bonds were loosed, their sins were forgiven, and that they were translated to the wonderful freedom of the children of God. In the meantime, their convulsions continued, and they remained during this condition so abstracted from every earthly thought, that they staid two and sometimes three days and nights together in the chapels, agitated all the time by spasmodic movements, and taking neither repose nor nourishment. According to a moderate computation, 4000 people were, within a very short time, affected with this convulsive malady.

The course and symptoms of the attacks were in general as follows:—There came on at first a feeling of faintness, with rigor and a sense of weight at the pit of the stomach, soon after which, the patient cried out, as if in the agonies of death or the pains of labour. The convulsions then began, first showing themselves in the muscles of the eyelids, though the eyes themselves were fixed and staring. The most frightful contortions of the countenance followed, and the convulsions now took their course downwards, so that the muscles of the neck and trunk were affected, causing a sobbing respiration, which was performed with great effort. Tremors and agitation followed, and the patients screamed out violently and tossed their heads about from side to side. As the complaint increased, it seized the arms, and its victims beat their breasts, clasped their hands, and made all sorts of strange gestures. The observer who gives this account remarked that the lower extremities were in no instance affected. In some cases, exhaustion came on in a very few minutes, but the attack usually lasted much longer, and there were even cases in which it was known to continue for sixty or seventy hours. Many of those who happened to be seated when the attack commenced, bent their bodies rapidly backwards and forwards during its continuance, making a corresponding motion with their arms, like persons sawing wood. Others shouted aloud, leaped about, and threw their bodies into every possible posture, until they had exhausted their strength. Yawning took place at the commencement in all cases, but as the violence of the disorder increased, the circulation and respiration became accelerated, so that the countenance assumed a swollen and puffed appearance. When exhaustion came on patients usually fainted, and remained in a stiff and motionless state until their recovery. The disorder completely resembled

the St Vitus's dance, but the fits sometimes went on to an extraordinarily violent extent, so that the author of the account once saw a woman, who was seized with these convulsions, resist the endeavours of four or five strong men to restrain her. Those patients who did not lose their consciousness were in general made more furious by every attempt to quiet them by force, on which account they were in general suffered to continue unmolested until nature herself brought on exhaustion. Those affected complained, more or less, of debility after the attacks, and cases sometimes occurred in which they passed into other disorders: thus some fell into a state of melancholy, which, however, in consequence of their religious ecstacy, was distinguished by the absence of fear and despair; and in one patient inflammation of the brain is said to have taken place. No sex or age was exempt from this epidemic malady. Children five years old and octogenarians were alike affected by it, and even men of the most powerful frame were subject to its influence. Girls and young women however, were its most frequent victims.*

4. For the last hundred years a nervous affection of a perfectly similar kind has existed in the Shetland Islands, which furnishes a striking example, perhaps the only one now existing, of the very lasting propagation by sympathy of this species of disorders. The origin of the malady was very insignificant. An epileptic woman had a fit in church, and whether it was that the minds of the congregation were excited by devotion, or that, being overcome at the sight of the strong convulsions, their sympathy was called forth, certain it is, that many adult women, and even children, some of whom were of the male sex, and not more than six years old, began to complain forthwith of palpitation, followed by faintness, which passed into a motionless and apparently cataleptic condition. These symptoms lasted more than an hour, and probably recurred frequently. In the course of time, however, this malady is said to have undergone a modification, such as it exhibits at the present day. Women whom it has attacked will suddenly fall down, toss their arms about, writhe their bodies into various shapes, move their heads suddenly from side to side, and with eyes fixed and staring, utter the most dismal cries. If the fit occurs on any occasion of public diversion, they will, as soon as it has ceased mix with their companions and continue their amusement as if nothing had happened. Paroxysms of this kind used to prevail most during the warm months of summer, and about fifty years ago there was scarcely a Sabbath in which they did not occur. Strong passions of the mind, induced by religious enthusiasm, are also exciting causes of these fits, but like all such false tokens of divine workings, they are easily encountered by producing in the patient a different frame of mind, and especially by exciting a sense of shame: as when those affected are under the control of any sensible preacher, who knows how to "administer to a mind diseased," and to expose the folly of voluntarily yielding to a

* This statement is made by *J. Cornish*. See *Fothergill's and Want's Medical and Physical Journal*, vol. xxxi. 1814. p. 373—379.

sympathy so easily resisted, or of inviting such attacks by affectation. An intelligent and pious minister of Shetland informed the physician, who gives an account of this disorder as an eye-witness, that being considerably annoyed, on his first introduction into the country by these paroxysms, whereby the devotions of the church was much impeded, he obviated their repetition by assuring his parishioners, that no treatment was more effectual than immersion in cold water; and as his kirk was fortunately contiguous to a fresh-water lake, he gave notice that attendants should be at hand, during divine service, to ensure the proper means of cure. The sequel need scarcely be told. The fear of being carried out of the church, and into the water, acted like a charm; not a single Naiad was made, and the worthy minister, for many years, had reason to boast of one of the best regulated congregations in Shetland. As the physician above alluded to was attending divine service in the kirk of Baliasta, on the Isle of Unst, a female shriek, the indication of a convulsion fit, was heard; the minister, Mr. Ingran of Fetlar, very properly stopped his discourse, until the disturber was removed; and, after advising all those who thought they might be similarly affected, to leave the church, he gave out, in the meantime, a psalm. The congregation was thus preserved from further interruption; yet the effect of sympathy was not prevented, for as the narrator of the account was leaving the church, he saw several females writhing and tossing about their arms on the green grass, who durst not, for fear of a censure from the pulpit, exhibit themselves after this manner within the sacred walls of the kirk.*

In the production of this disorder, which no doubt still exists, fanaticism certainly had a smaller share than the irritable state of women out of health, who only needed excitement, no matter of what kind, to throw them into the prevailing nervous paroxysms. When, however, that powerful cause of nervous disorders takes the lead, we find far more remarkable symptoms developed, and it then depends on the mental condition of the people among whom they appear, whether, in their spread, they shall take a narrow or an extended range—whether confined to some small knot of zealots they are to vanish without a trace, or whether they are to attain even historical importance.

5. The appearance of the *Convulsionnaires* in France, whose inhabitants, from the greater mobility of their blood, have in general been the less liable to fanaticism, is, in this respect, instructive and worthy of attention. In the year 1727 there died, in the capital of that country, the Deacon Pâris, a zealous opposer of the Ultramontanists, division having arisen in the French church on account of the bull "Unigenitus." People made frequent visits to his tomb, in the cemetery of St. Medard, and four years afterwards (in September,

* *Samuel Hibbert*, Description of the Shetland Islands, comprising an account of their geology, scenery, antiquities, and superstitions. Edinburgh, 1822. 4to. p. 399.

1731,) a rumour was spread, that miracles took place there. Patients were seized with convulsions and tetanic spasms, rolled upon the ground like persons possessed, were thrown into violent contortions of their heads and limbs, and suffered the greatest oppression, accompanied by quickness and irregularity of pulse. This novel occurrence excited the greatest sensation all over Paris, and an immense concourse of people resorted daily to the above named cemetery, in order to see so wonderful a spectacle, which the Ultramontanists immediately interpreted as a work of Satan, while their opponents ascribed it to a divine influence. The disorder soon increased, until it produced magnetic sleep (*Schlafwachen*) in nervous women, a phenomenon till then unknown; for one female especially attracted attention, who blindfold, and, as it was believed, by means of the sense of smell, read every writing that was placed before her, and distinguished the characters of unknown persons. The very earth taken from the grave of the Deacon, was soon thought to possess miraculous power. It was sent to numerous sick persons at a distance, whereby they were said to have been cured, and thus this nervous disorder spread far beyond the limits of the capital, so that at one time it was computed that there were more than eight hundred decided *Convulsionnaires*, who would hardly have increased so much in numbers, had not Louis XV. directed that the cemetery should be closed.* The disorder itself assumed various forms, and increased, by its attacks the general excitement. Many persons, besides suffering from the convulsions, became the subjects of violent pain, which required the assistance of their brethren of the faith. On this account they, as well as those who afforded them aid, were called by the common title of *Secourists*. The modes of relief adopted were, in general, very rough, and they were remarkably in accordance with those which were administered to the St. John's dancers and the Tarantati; for the sufferers were beaten and goaded in various parts of the body with stones, hammers, swords, clubs, &c., of which the defenders of this extraordinary sect relate the most astonishing examples, in proof that severe pain is imperatively demanded by nature in this disorder, as an effectual counter-irritant. The Secourists used wooden clubs, in the same manner as paviours use their mallets, and it is stated that some Convulsionnaires have borne daily from six to eight thousand blows, thus inflicted, without danger.† One Secourist administered to a young woman, who was

* About this time the following couplet was circulated:—

“De par le Roi, defense à Dieu
De faire miracle dans ce lieu.”

† This kind of assistance was called the “Grands Secours.” *Boursier*, *Mémoire Théologique sur ce qu'on appelle les Secours violens dans les Convulsions*. Paris, 1788. 12mo. Many Convulsionnaires were seized with illness in consequence of this singularly erroneous mode of cure. A Dominican friar died from the effects of it—though accidents of this kind were kept carefully concealed. See *Renault* (parish priest at Vanx, near Auxerre; obiit, 1796,) *Le Secourisme détruit dans ses fondemens*, 1759, 12mo. and *Le Mystère d'Iniquité*. 1788. 8vo.

suffering under spasm of the stomach, the most violent blows on that part, not to mention other similar cases, which occurred every where in great numbers. Sometimes the patients bounded from the ground, impelled by the convulsions, like fish when out of water ; and this was so frequently imitated at a later period, that the women and girls, when they expected such violent contortions, not wishing to appear indecent, put on gowns, made like sacks, closed at their feet. If they received any bruises by falling down they were healed with earth from the grave of the uncanonized saint. They usually however, showed great agility in this respect, and it is scarcely necessary to remark that the female sex especially was distinguished by all kinds of leaping, and almost inconceivable contortions of body. Some spun round on their feet with incredible rapidity, as is related of the dervishers ; others ran their heads against walls, or curved their bodies like rope-dancers, so that their heels touched their shoulders.

All this degenerated at length into decided insanity. A certain Convulsionaire, at Vernon, who had formerly led rather a loose course of life, employed herself in confessing the other sex ; in other places women of this sect were seen imposing exercises of penance on priests, during which these were compelled to kneel before them. Others played with children's rattles, or drew about small carts, and gave to these childish acts symbolical significations.* One Convulsionaire even made believe to shave her chin and give religious instruction at the same time, in order to imitate Pâris, the worker of miracles, who, during this operation, and whilst at table, was in the habit of preaching. Some had a board placed across their bodies, upon which a whole row of men stood ; and, as in this unnatural state of mind a kind of pleasure is derived from excruciating pain, some too were seen who caused their bosoms to be pinched with tongs, while others, with gowns closed at the feet, stood upon their heads, and remained in that position longer than would have been possible had they been in health. Pinault, the advocate, who belonged to this sect, harked like a dog some hours every day, and even this found imitation among the believers.

The insanity among the Convulsionaires lasted, without interruption, until the year 1790, and, during these fifty-nine years, called forth more lamentable phenomena than the enlightened spirits of the eighteenth century would be willing to allow. The grossest immorality found, in the secret meetings of the believers, a sure sanctuary, and, in their bewildering devotional exercises, a convenient cloak. It was of no avail that, in the year 1762, the Grands Secours were forbidden by act of parliament ; for thenceforth this work was carried on in secrecy, and with greater zeal than ever ; it was in vain, too, that some physicians, and, among the rest, the austere, pious

* *Arouet*, the father of *Voltaire*, visited, in Nantes, a celebrated Convulsionaire, *Gabrielle Mollet*, whom he found occupied in pulling the bells off a child's coral, to designate the rejection of the unbelievers. Sometimes she jumped into the water, and barked like a dog. She died in 1748.

Hecquet,* and after him Lorry,† attributed the conduct of the Convulsionnaires to natural causes. Men of distinction among the upper classes, as, for instance, Montgeron the deputy, and Lambert an ecclesiastic (obt. 1813), stood forth as the defenders of this sect; and the numerous writings‡ which were exchanged on the subject, served, by the importance which they thus attached to it, to give it stability. The revolution, finally, shook the structure of this pernicious mysticism. It was not however, destroyed; for, even during the period of the greatest excitement, the secret meetings were still kept up; prophetic books, by convulsionnaires of various denominations, have appeared even in the most recent times, and only a few years ago (in 1828) this once celebrated sect still existed, although without the convulsions and the extraordinarily rude aid of the brethren of the faith, which, amidst the boasted pre-eminence of French intellectual advancement, remind us most forcibly of the dark ages of the St. John's dancers.§

6. Similar fanatical sects exhibit among all nations|| of ancient and modern times the same phenomena. An overstrained bigotry is, in

* *J. Phil. Hecquet* (obit 1737). *Le Naturalisme des Convulsions*. Soleure, 1733 8vo.

† *De Melancholia et Morbis Melancholicis*. Paris, 1765. 2 vols. 8vo.

‡ Especially from 1784 to 1788.

§ See *Grégoire*, *Histoire des Sectes Religieuses*, tome ii. ch. 13. p. 127. Paris, 1828. 8vo. The following words of this meritorious author, on the mental state of his countrymen, are very well worthy of attention. “*L'esprit public est dans un état de fluctuation persévérante : des âmes flétries par l'égoïsme n'ont que la caractère de la servitude ; l'éducation viciée ne forme guère que des êtres dégradés ; la religion est méconnue ou mal enseignée ; la nation présente des symptômes alarmans de sa décrépitude, et présage des malheurs dont on ne peut calculer l'étendue ni la durée.*” P. 161.

|| (Translator's note.) “I had occasion to witness at Cairo another species of religious fanaticism. I heard one day, at a short distance from my residence, for several hours together, singing, or more properly crying, so uniform and fatiguing, that I inquired the cause of this singularity. I was told that it was some dervise or monk, who repeated, while *dancing* on his heels, the name of Allah. till, completely exhausted, he sunk down insensible. These unhappy visionaries, in fact, often expire at the end of this holy *dance*; and the cries of the one whom I heard, having commenced in the afternoon, and continued during the whole of the night, and part of the following morning, I doubt not that his pious enthusiasm cost him his life.”—*Recollections of Egypt, by the Baroness Von Minutoli*. London, 1827.

In Arabia the same fantastical zeal exists, as we find from the following passage of an anonymous history of the Wahabis, published in Paris, in 1810: “La prière la plus méritoire consiste à crier le nom de Dieu, pendant des heures entières, et le plus saint est celui qui répète ce nom le plus long temps et le plus vite. Rien de plus curieux que le spectacle des Schekhs, qui, dans les fêtes publiques, s'essayaient à l'envi. et hurlent le nom d'Allah d'une manière effrayante. La plupart enroués sont forcés de se taire, et abandonnent la palme au saint à forte poitrine, qui, pour jouir de sa victoire, s'efforce et jette encore quelque cris devant ses rivaux réduits au silence. Epuisé de fatigue, baigné de sueur, il tombe enfin au milieu du peuple dévot, qui s'empresse à le relever et le porte en triomphe. Les principales mosquées retentissent, tous les Vendredis, des cris dictés par cette singulière émulation. Le Schekh, que ses poumons ont sanctifié, conserve son odeur de sainteté par des extases et des transports, souvent dangereux pour les Chrétiens que le hazard en rend témoins malgré eux.”

itself, and considered in a medical point of view, a destructive irritation of the senses, which draws men away from the efficiency of mental freedom, and peculiarly favours the most injurious emotions. Sensual ebullitions, with strong convulsions of the nerves, appear sooner or later,* and insanity, suicidal disgust of life, and incurable nervous disorders,† are but too frequently the consequences of a perverse, and, indeed, hypocritical zeal, which has ever prevailed, as well in the assemblies of the Mænades and Corybantes of antiquity, as under the semblance of religion among the Christians and Mahomedans.

There are some denominations of English Methodists which surpass, if possible, the French Convulsionaires; and we may here mention, in particular, the Jumpers, among whom it is still more difficult to draw the line between religious ecstacy and a perfect disorder of the nerves, than in the example given above; sympathy, however, operates perhaps more perniciously on them than on other fanatical assemblies. The sect of Jumpers was founded in the year 1760, in the county of Cornwall, by two fanatics,‡ who were, even at that time, able to collect together a considerable party. Their general doctrine is that of the methodists, and claims our consideration here, only in so far as it enjoins them, during their devotional exercises, to fall into convulsions, which they are able to effect in the strangest manner imaginable. By the use of certain unmeaning words, they work themselves up into a state of religious frenzy, in which they seem to have scarcely any control over their senses. They then begin to jump with strange gestures, repeating this exercise with all their might, until they are exhausted, so that it not unfrequently happens that women, who, like the Mænades, practise these religious exercises, are carried away from the midst of them in a state of syncope, whilst the remaining members of the congregation, for miles together, on their way home, terrify those whom they meet by the sight of such demoniacal ravings. There are never more than a few ecstasies, who, by their example, excite the rest to jump, and these are followed by the greatest part of the meeting, so that these assemblages of the Jumpers resemble, for hours together, the wildest orgies, rather than congregations met for Christian edification.§

In the United States of North America, communities of Methodists have existed for the last sixty years. The reports of credible witnesses of their assemblages for divine service in the open air (camp-meetings),|| to which many thousands flock from great dis-

* For examples see *Osiander*, *Entwickelungskrankheiten*. Loc. cit. p. 45.

† Among 108 cases of insanity, *Perfect* mentions eleven of mania and methodical enthusiasm, in nine of which suicide was committed. *Annals of Insanity*. London, 1808. 8vo.

‡ *Harris Rowland* and *William Williams*.

§ *John Evans*, *Sketch of the Denominations of the Christian World*. 13th edition. London, 1814. 12mo. p. 236.—See *Grégoire*. Loc. cit. tome iv. c. xiii. p. 483.

|| (Translator's note.) *Mrs. Trollope's Domestic Manners of the Americans*. A Revival, p. 108—112. *Shaking Quakers*, p. 195, 196. *Camp Meeting*, 233. London, 2 vols. 1832.

tances,* surpass, indeed, all belief; for not only do they there repeat all the insane acts of the French Convulsionnaires and of the English Jumpers, but the disorder of their minds and of their nerves attains, at these meetings, a still greater height. Women have been seen to miscarry whilst suffering under the state of ecstasy and violent spasms into which they are thrown, and others have publicly stripped themselves and jumped into the rivers. They have swooned away† by hundreds, worn out with ravings and fits; and of the Barkers, who appeared among the Convulsionnaires only here and there, in single cases of complete aberration of intellect, whole bands are seen running on all fours, and growling‡ as if they wished to indicate, even by their outward form, the shocking degradation of their human nature. At these camp-meetings the children are witnesses of this mad infatuation, and as their weak nerves are, with the greatest facility, affected by sympathy, they, together with their parents, fall into violent fits, though they know nothing of their import, and many of them retain for life some severe nervous disorder, which, having arisen from fright and excessive excitement, will not afterwards yield to any medical treatment.§

But enough of these extravagances, which, even in our own days, embitter the lives of so many thousands, and exhibit to the world, in the nineteenth century, the same terrific form of mental disturbance as the St. Vitus's dance once did to the benighted nations of the middle ages.

* In Kentucky assemblies of from ten to twelve thousand have frequently taken place. Virginia, North Carolina, Tennessee, and New York, are also the theatres of these meetings.—*Grégoire*, tome iv. p. 496.

† At one of these camp-meetings a traveller saw above eight hundred persons faint away. *Idem*. He nowhere met with more frequent instances of suicide in consequence of Demonomania, than in North America.

‡ *Idem*. p. 498. These are the *Barkers*. Numerous other convulsive Methodistical sects abound in North America. The *Shakers*, who are inimical to marriage, would also have been mentioned, were not their contortions much less violent than those of the Jumpers.—See *Grégoire*, tome v. p. 195. *Evans*, p. 267.

§ See *Perrin du Lac*, Voyage dans les deux Louisianes. Paris, 1805. 8vo. chap. ix. p. 64, 65. chap. xvii. p. 128, 129.—*Michaud*, Voyage à l'ouest des Monts Alleghanys. Paris, 1804. 8vo. p. 212.—*John Melish*, Travels in the United States of America. Philadelphia, 1812. 8vo. vol. i. p. 26.—*Lambert*, Travels through Canada and the United States. London, 1810. 8vo. vol. iii. p. 44.—*John Howison*, Sketches of Upper Canada. Edinburgh, 1822. 8vo. p. 150.—*Edward Allen Talbot*, Cinq Années de Résidence au Canada. Paris, 1825. 8vo. tome ii. p. 147.

A P P E N D I X.

I.

Petri de Herentals, Prioris Floreffiensis Vita Gregorii XI., in Stephan. Baluzii Vitæ Paparum Avenionensium. T. I. Paris, 1693. 4to. p. 483.

Ejus tempore, videlicet A. D. MCCCLXXV mira secta tam virorum quam mulierum venit Aquisgrani de partibus Alamanniæ, et ascendit usque Hanoniam seu Franciam, cujus talis fuit conditio. Nam homines utriusque sexus illudebantur a dæmonio, taliter quod tam in domibus quam in plateis et in Ecclesiis se invicem manibus tenentes chorizabant et in altum saltabant, ac quædam nomina dæmoniorum nominabant, videlicet *Friskes* et similia, nullam cognitionem in hujusmodi chorizatione nec verecundiam sui propter astantes populos habentes. Et in fine hujus chorizationis in tantum circa pectoralia torquebantur, quod nisi mappulis lineis a suis amicis per medium ventris fortiter stringerentur, quasi furiose clamabant se mori. Hi vero in Leodio per conjurationes sumptas de illis quæ in catechismo ante baptismum fiunt, a dæmonio liberabantur, et sanati dicebant, quod videbatur eis *quod in hora hujus chorizationis erant in fluvio sanguinis, et propterea sic in altum saltabant.* Vulgus autem apud Leodium, dicebat quod hujusmodi plaga populo contigisset eo quod populus male baptizatus erat, maxime a Presbyteribus suas tenentibus concubinas. Et propter hoc proposuerat vulgus insurgere in clerum, eos occidendo et bona eorum diripiendo, nisi Deus de remedio providisset per conjurationes prædictas. Quo viso cessavit tempestas vulgi taliter quod clerus multo plus a populo fuit honoratus. De ista autem chorizatione seu secta talia extant rigmata :—

Oritur in seculo nova quædam secta
In gestis aut in speculo visa plus nec lecta.
Populus tripudiat nimium saltando.
Se unus alteri sociat leviter clamando.
Frisch friskes cum gaudio clamat uterque sexus
Cunctus manutergio et baculo connexus.
Capite fert pelleum desuper sertum.
Cernit Mariæ filium et cælum apertum.
Deorsum prosternitur. Dudum fit ululatus.
Calcato ventre cernitur statim liberatus.
Vagatur loca varia pompose vivendo.
Mendicat necessaria propriis parcendo.
Spernit videre rubra et personam flentem.
Ad fidei contraria erigit hic gens mentem.
Noctis sub umbraculo ista perpetravit.
Cum naturali baculo subtus se calcavit.
Clerum habet odio. Non curat sacramenta.
Post sunt in Leodio remedia inventa,
Hanc nam fraudem qua suggestit sathan est convictus.
Conjuratus evanescit. Hinc sit Christus benedictus.

II.

Jo. Pistorii Rerum familiarumque Belgicarum Chronicon magnum. Francof. 1654. fol. p. 319. De chorisantibus.

Item Anno Domini MCCCCLXXIV. tempore pontificatus venerabilis Domini Joannis de Arekel Episcopi Leodiensis, in mense Julio in crastino divisionis Apostolorum visi sunt dansatores scilicet chorisantes, qui postea venerunt Trajectum, Leodium, Tungrim et alia loca istarum partium in mense Septembri. Et cœpit hæc *dæmoniaca pestis* vexare in dictis locis et circumvicinis masculos et fœminas maxime pauperes et levis opinionis ad magnum omnium terrorem; pauciclericorum vel divitum sunt vexati. Serta in capitibus gestabant, circa ventrem mappa cum baculo se stringebant circa umbilicum, ubi post saltationem cadentes nimium torquebantur, et ne creparentur pedibus conculcabantur, vel contra creporem cum baculo ad mappam duriter se ligabant, vel cum pugno se trudi faciebant, rostra calceorum aliqui clamabant se abhorrere, unde in Leodio fieri tunc vetabantur. Ecclesias chorisando occupabant, et crescebant numero de mense Septembri et Octobri, processiones fiebant ubique, litaniæ et missæ speciales. Leodii apud Sanctam crucem scholaris servitor in vespers dedicationis, cœpit ludere cum thuribulo, et post vespers fortiter saltare. Evocatus a pluribus, ut diceret Pater noster, noluit, et Credo respondit in diabolum. Quod videns capellanus, allata stola conjuravit eum per exorcismum baptizandorum, et statim dixit: Ecce inquit, scholaris recedit cum parva toga et calceis rostratis. Die, tunc inquit, Pater noster et Credo. At ille utrumque dixit perfecte et curatus est. Apud Harstallum uno mane ante omnium Sanctorum, multi eorum ibi congregati consilium habuerunt, ut pariter venientes omnes canonicos, presbyteres et clericos Leodienses occiderent. Canonicus quidam parvæ mensæ minister Simon in claustro Leodiensi apud capellam Beatæ virginis, in Deo confortatus, scalam projecit in collum unius, dicens Evangelium: In principio erat verbum, super caput ejus, et per hoc fuit liberatus, et pro miraculo statim fuit pulsatum. Apud S. Bartolomæum Leodii, præsentibus multis, cuidam alii exorcisanti respondit dæmon: Ego exibo libenter. Expecta, inquit presbyter, volo tibi loqui. Et postquam aliquos alios curasset, dixit illi, loquere tu personaliter et responde mihi. Tum solus respondit dæmon: Nos eramus duo, sed socius meus nequior me, ante me exivit, habui tot pati in hoc corpore si essem extra, nunquam intrarem in corpus Christianum. Cui presbyter: Quare intrasti corpora talium personarum? Respondit: Clerici et presbyteres dicunt tot pulchra verba et tot orationes, ut non possemus intrare corpora ipsorum. Si adhuc fuisset expectatum per quindenam vel mensem, nos intrassemus corpora divitum, et postea principum, et sic per eos destruxissemus clerum. Et hæc fuerunt ibi a multis audita et postea a multis narrata. Hæc pestis intra annum satis invaluit, sed postea per tres aut quatuor annos omnino cessavit.

III*

Die Limburger Chronik, herausgegeben von *C. D. Vogel*. Marburg, 1828, 8vo. s. 71.

Anno 1374 zu mitten im Sommer, da erhub sich ein wunderlich Ding auff Erdreich, und sonderlich in Teutschen Landen, auff dem Rhein und auff der Mosel, also dass Leute anhuben zu tantzen und zu rasen, und stunden je zwey gegen ein, und tantzeten auff einer Stätte einen halben Tag, und in dem Tantz da fielen sie etwan oft nieder, und liessen sich mit Füßen treten auff ihren Leib. Davon nahmen sie sich an, dass sie genesen wären. Und lieffen von einer Stadt zu der andern, und von einer Kirchen zu der andern, und huben Geld auff von den Leuten, wo es ihnen mocht gewerden. Und wurd des Dings also viel, dass man zu Cölln in der Stadt mehr dann fünf hundert Tüntzer fand. Und fand man, dass es eine Ketzerey war, und geschahe um Golds willen, dass ihr ein Theil Frau und Mann in Unkeusehheit mochten kommen, und die vollbringen. Und fand man da zu Cölln mehr dann hundert Frauen und Dienstmägde, die nicht eheliche Männer hatten. Die wurden alle in der Tüntzerey Kinder-tragend, und wann dass sie tantzeten, so bunden und knebelten sie sich hart um den Leib, dass sie desto geringer wären. Hierauff sprachen ein Theils Meister, sonderlich der guten Artzt, dass ein Theil wurden tantzend, die von heisser Natur wären, und von andern gebrechlichen natürlichen Sachen. Dann deren war wenig, denen das geschahe. Die Meister von der heiligen Schrift, die beschwohren der Tüntzer ein Theil, die meynten, dass sie besessen wären von dem bösen Geist. Also nahm es ein betrogen End, und währete wohl sechzehn Wochen in diesen Landen oder in der Mass. Auch nahmen die vorgenannten Tüntzer Mann und Frauen sich an, dass sie kein roth sehen möchten. Und war ein eitel Teuscherey, und ist verbottenschaft gewesen an Christum nach meinem Bedünken.

IV.

Die Chronica van der hilliger Stat van Coellen. A.D. MCCCCLXXIV. fol. 277. Coellen, 1499. fol.

In dem seluen iair stonde eyn groisse kranekheit vp vnder den mynschen, ind was doch niet vill me gesyen dese selue kranekheit vur off nae ind quam van natuerlichen ursachen as die meyster schrijuen, ind noemen Sij maniam, dat is raserie off unsynnicheit. Ind vill lude beyde man ind frauwen junk ind alt hadden die kranekheit. Ind gyngen vyss huyss ind hoff, dat deden ouch junge meyde, die ver-

* The substance of Nos. III. and IV. having been embodied in the text, it seems only necessary to insert here the original old German, which is couched in language too coarse to admit of translation.

liessen yr alderen, vrunde ind maege ind lantschaff. Disse vurss mynschen zo etzliehen tzijden as Sij die kranckhetit anstiesse, so hadden Sij eyn wonderlich bewegung yrre lychamen. Sij gauen vyss kryschende vnd grusame stymme, ind mit dem wurpen Sij sich haestlich up die erden, vnd gyngen liggen up yren rugge, ind beyde man ind vrouwen moist men vmb yren buych ind vmp lenden gurdelen vud kneuelen mit twelen vnd mit stareken breyden benden, asso stijff vnd harte als men mochte.

Item asso gegurt mit den twelen dantzten Sij in kyrchen ind in clusen ind vp allen gewijeden steden. As Sij dantzten, so sprungen Sij allit vp ind rieffen, *Here sent Johan, so so, vrisch ind vro here sent Johan.*

Item die ghene die die kranckheit hadden wurden gemeynlichen gesunt bynne. VV. dagen. Zom lesten geschiede vill bouerie vnd droeh dae mit. Eyndeyll naemen sich an dat Sij kranck weren. vp dat Sij mochten gelt dae durch bedelen. Die anderen vinsden sich kranck vp dat Sij mochten vnkuysehheit bedrijuen mit den vrouwen. jnd gyngen durch alle lant ind dreuen vill bouerie. Doch zo lesten brach idt vyss ind wurden verdreuen vyss den landen. Die selue dentzer quamen ouch zo Coellen tussehen tzwen vnser lieuen frauen missen Assumptionis ind Natiuitatis.

V.

In the third volume of the Edinburgh Medical and Surgical Journal, p. 434, there is an account of "some convulsive diseases in certain parts of Scotland," which is taken from Sir J. Sinelair's statistical account, and from which I have thought it illustrative of our author's subject to make some extracts; the first that is noticed is peculiar to a part of Forfarshire, and is called the leaping ague, which bears so close analogy to the original St. Vitus's dance or to Tarantism, that it seems to want only the "foul fiend," or the dreaded bite, as a cause, and a Scotch reel or strathspey as a cure, to render the resemblance quite complete. "Those affected with it first complain of a pain in the head or lower part of the back, to which succeed convulsive fits, or *fits of dancing*, at certain periods. During the paroxysm they have all the appearance of madness, distorting their bodies in various ways, and leaping and springing in a surprising manner, whence the disease has derived its vulgar name. Sometimes they run with astonishing velocity, and often over dangerous passes, to some place out of doors, which they have fixed on in their own minds, or, perhaps, even mentioned to those in company with them, and then *drop down quite exhausted*. At other times, especially when confined to the house they climb in the most singular manner. In cottages, for example, they leap from the floor to what is called the baulks, or those beams

by which the rafters are joined together, springing from one to another with the agility of a cat, or whirling round one of them with a motion resembling the fly of a jack. Cold bathing is found to be the most effectual remedy ; but when the fit of dancing, leaping, or running comes on, *nothing tends so much to abate the violence of the disease, as allowing them free scope to exercise themselves till nature be exhausted.* No mention is made of its being peculiar to any age, sex, or condition of life, although I am informed by a gentleman from Breehin, that it is most common before puberty. In some families it seems to be hereditary ; and I have heard of one, in which a horse was always kept ready saddled, to follow the young ladies belonging to it, when they were seized with a fit of running. It was first observed in the parish of Kenmuir, and has prevailed occasionally in that and the neighbouring parishes, for about seventy years ; but is not now nearly so frequent as it was about thirty years ago. The history of this singular affection is still extremely imperfect ; and it is only from some of the medical practitioners in that part of the country where it prevails, that a complete description can be expected."

Our author has already noticed the convulsive disease prevalent in the Shetland Islands, and has quoted Hibbert's account of it. The following, however, from a very valuable manuscript account of the Orkney and Shetland Islands, drawn up about 1774, by George Low, with notes, by Mr. Pennant, is given in the Journal already cited, and will be read with interest. The facts were communicated to Mr. Low by the Rev. Wm. Archibald parochial clergyman of Unst, the most northerly of the Shetlands.

"There is a most shocking distemper, which has of late years prevailed very much, especially among young women, and was hardly known thirty or forty years ago. About that period only one person was subject to it. The inhabitants gave it the name of convulsion fits ; and indeed, in appearance, it something resembles epilepsy. In its rise it began with a palpitation of the heart, of which they complained for a considerable time ; it at length produced swooning fits, in which people seized with it would lie motionless upwards of an hour. At length, as the distemper gathered strength, when any violent passion seized, or on a sudden surprise, they would all at once fall down, toss their arms about with their bodies, into many odd shapes, crying out all the while, most dismally, throwing their heads about from side to side, with their eyes fixed and staring. At first this distemper obtained, in a private way, with one female, but she being seized in a public way, at church, the disease was communicated to others ; but whether by the influence of *fear or sympathy*, is not easy to determine. However this was, our public assemblies, especially at church, became greatly disturbed by their outcries. This distemper always prevails most violently during the summer time, in which season, for many years, we are hardly one sabbath free. In these few years past, it has not prevailed so extensively, and upon the whole seems on the decline. One thing remarkable in this distemper

is, that as soon as the fit is over, the persons affected with it are generally as lively and brisk as before ; and if it happens at any of their public diversions, as soon as they revive, they mix with their companions, and continue their amusement as vigorously as if nothing had happened. Few men are troubled with this distemper, which seems more confined to women ; but there are instances of its seizing men and girls of six years of age. With respect to the nature of this disease, people who have made inquiry about it differ, but most imagine it hysterical ; however this seems not entirely the case, as men and children are subject to it ; however, it is a new disease in Shetland, but whence imported, none can imagine."

"When the statistical account of this parish was published, this awful and afflicting disease was becoming daily less common. In the parishes of Aithsting, Sandsting, and Northmaven, in which it was once very frequent, it was now totally extinct. In the last of these the cure is said to have been effected by a very singular remedy, which if true, and there seems no reason to doubt it shows the influence of moral causes in removing, as well as in inducing, convulsive disorders." The cure is attributed to a rough fellow of a kirk officer, who tossed a woman in that state, with whom he had been frequently troubled, into a ditch of water. She was never known to have the disease afterwards, and others dreaded the same treatment.

It, however, still prevails in some of the northern parishes, particularly in Delting, although, according to the description given of it, with some alteration in its symptoms.

"Convulsion fits of a very extraordinary kind seem peculiar to this country. The patient is first seized with something like fainting, and immediately after utters wild cries and shrieks, the sound of which, at whatever distance, immediately puts all who are subject to the disorder in the same situation. It most commonly attacks them when the church is crowded, and often interrupts the service in this and many other churches in the country. On a sacramental occasion, fifty or sixty are sometimes carried out of the church, and laid in the church-yard, where they struggle and roar with all their strength, for five or ten minutes, and then rise up without recollecting a single circumstance that happened to them, or being in the least hurt or fatigued with the violent exertions they had made during the fit. One observation occurs on this disorder, that during the late scarce years it was very uncommon, and, during the two last years of plenty (1791), it has appeared more frequently.

"Similar instances of epidemical convulsions are already upon record ; but the history of that which occurred in Anglesea, North Wales, is the most remarkable, as its progress was, in all probability, checked by the judicious precautions recommended by Dr. Haygarth.

"In 1796, on the estates of the Earl of Uxbridge and Holland Griffith, Esq., twenty-three females, from ten to 25, and one boy, of about 17 years of age, who had all intercourse with each other, were

seized with an unusual kind of convulsions, affecting only the upper extremities. It began with pain of the head, and sometimes of the stomach and side, not very violent ; after which there came on violent twitchings or convulsions of the upper extremities, continuing, with little intermission, and causing the shoulders almost to meet by the exertion. In bed the disorder was not so violent ; but, in some cases at least, it continued even during sleep. Their pulse was moderate, the body costive, and the general health not much impaired. In general they had a hiccough ; and, when the convulsions were most violent, giddiness came on, with the loss of hearing and recollection. During their convalescence, and they all recovered, the least fright or sudden alarm, brought on a slight paroxysm.

“ Dr. Haygarth, who was consulted on the means of relieving these unfortunate people, successfully recommended the use of antispasmodics ; that all girls and young women should be prevented from having any communication with persons affected with those convulsions ; and that those who were ill should be kept separate as much as possible.”

The same paper from which the above extracts have been taken, quotes a remarkable instance in which religious enthusiasm was the exciting cause of a convulsive disease analogous to those already noticed. The account is given by the Rev. Dr. Meik, at great length. It appears, that in January 1742, about ninety persons in the parish of Cambuslang, in Linarkshire, were induced to subscribe a petition to the minister, urging him to give them a weekly lecture, to which he readily assented. Nothing particular occurred at the first two lectures but, at the third, to which his hearers had been very attentive, when the minister in his last prayer, expressed himself thus, “ Lord, who hath believed our report ; and to whom is the arm of the Lord revealed ?—where are the fruits of my poor labours among this people ?” several persons in the congregation cried out publicly, and about fifty men and women came to the minister’s house, expressing strong convictions of sin, and alarming fears of punishment. After this period, so many people from the neighbourhood resorted to Cambuslang, that the minister thought himself obliged to provide them with daily sermons or exhortations, and actually did so for seven or eight months. The way in which the converts were affected, for it seems they were affected much in the same way, though in very different degrees, is thus described. “ They were seized, all at once, commonly by something said in the sermons or prayers, with the most dreadful apprehensions, concerning the state of their souls, insomuch that many of them could not abstain from crying out, in the most public and frightful manner, bewailing their lost and undone condition by nature ; calling themselves enemies to God, and despisers of precious Christ ; declaring that they were unworthy to live on the face of the earth ; that they saw the mouth of hell open to receive them, and that they heard the shrieks of the damned ; but the universal cry was, what shall we do to be saved ?” The agony under which they laboured, was expressed, not only by words, but also by violent agitations of body ; by clapping their hands and beating their breasts ; by shaking

and trembling ; by faintings and convulsions ; and sometimes by excessive bleeding at the nose. While they were in this distress, the minister often called out to them, not to stifle or smother their convictions, but to encourage them ; and, after sermon was ended, he retired with them to the manse, and frequently spent the best part of the night with them in exhortations and prayers. Next day, before sermon began, they were brought out, and, having napkins tied round their heads, were placed altogether on seats before the tents, where they remained sobbing, weeping, and often crying aloud, till the service was over. Some of those who fell under conviction were never converted ; but most of those who fell under it were converted in a few days, and sometimes in a few hours. In most cases their conversion was as sudden and unexpected as their conviction. They were raised all at once from the lowest depth of sorrow and distress, to the highest pitch of joy and happiness ; crying out with triumph and exultation, ‘ that they had overcome the wicked one ; that they had gotten hold of Christ, and would never let him go ; that the black cloud, which had hitherto concealed him from their view, was now dispelled ; and that they saw him, with a pen in his hand, blotting out their sins.’ Under these delightful impressions, some began to pray, and exhort publicly, and others desired the congregation to join with them in singing a particular psalm, which they said God had commanded them to sing. From the time of their conviction to their conversion, many had no appetite for food, or inclination to sleep, and all complained of their sufferings during that interval.”

The following account, which closes the paper whence the above quotations have been extracted, is taken from an Inaugural Essay on Chorea Sancti Viti, by Felix Robertson of Tennessee, Svo. Philadelphia, 1805.

“ The Chorea, which is more particularly the subject of this dissertation, made its appearance during the summer of 1803, in the neighbourhood of Maryville (Tennessee), in the form of an epidemic. Previously to entering on its history, I think it necessary to premise a few cursory remarks on the mode of life of those amongst whom it originated, for some time before the appearance of the disease.

“ I suppose there are but few individuals in the United States, who have not at least heard of the unparalleled blaze of enthusiastic religion which burst forth in the western country, about the year 1800 ; but it is, perhaps, impossible to have a competent idea of its effects, without personal observation. This religious enthusiasm travelled like electricity, with astonishing velocity, and was felt, *almost instantaneously*, in every part of the states of Tennessee and Kentucky. It often proved so powerful a stimulus, that every other entirely lost its effect, or was but feebly felt. Hence that general neglect of earthly things, which was observed, and the almost perpetual attendance at places of public worship. Their churches are, in general, small and every way uncomfortable ; the concourse of people on days of worship, particularly of extraordinary meetings, was very

numerous, and hundreds who lived at too great a distance to return home every evening, came supplied with provisions, tents, &c., for their sustenance and accommodation, during the continuance of the meeting, which commonly lasted from three to five days. They, as well as many others, remained on the spot day and night, the whole or greater part of this time, worshipping their Maker almost incessantly. The outward expressions of their worship consisted chiefly in alternate crying, laughing, singing, and shouting, and, at the same time, performing that variety of gesticulation which the muscular system is capable of producing. It was under these circumstances that some found themselves unable, by voluntary efforts, to suppress the contraction of their muscles; and, to their own astonishment, and the diversion of many of the spectators, they continued to act from necessity, the curious character which they had commenced from choice.

“The disease no sooner appeared, than it spread with rapidity through the medium of the principle of imitation; thus it was not uncommon for an affected person to communicate it to the greater part of a crowd, who, from curiosity or other motives, had collected around him. It is at this time, in almost every part of Tennessee and Kentucky, and in various parts of Virginia, but is said not to be contagious (or readily communicated) as at its commencement. It attacks both sexes, and every constitution, but evidently more readily those who are enthusiasts in religion, such as those above described, and females; children of six years of age, and adults of sixty, have been known to have it, but a great majority of those affected are from fifteen to twenty-five. The muscles generally affected are those of the trunk, particularly of the neck, sometimes those of the superior extremities, but very rarely, if ever, those of the inferior. The contractions are sudden and violent, such as are denominated convulsive, being sometimes so powerful, when in the muscles of the back, that the patient is thrown on the ground, where for some time, his motions more resemble those of a live fish, when thrown on land, than anything else to which I can compare them.

“This, however, does not often occur, and never, I believe, except at the commencement of the disease. The patients, in general, are capable of standing and walking, and many, after it has continued a short time, can attend to their business, provided it is not of a nature requiring much steadiness of body. They are incapable of conversing with any degree of satisfaction to themselves or company, being continually interrupted by those irregular contractions of their muscles, each causing a grunt, or forcible expiration; but the organs of speech do not appear to be affected, nor has it the least influence on the mind. They have no command over their actions by any effort of volition, nor does their lying in bed prevent them, but they always cease during sleep. This disease has remissions and exacerbations, which, however, observe no regularity in their occurrence or duration. During the intermission a paroxysm is often excited at the sight of a person affected, but more frequently by the common salute of shaking hands. The sensations of the patients in

a paroxysm are generally agreeable, which the enthusiastic class often endeavour to express, by laughing, shouting, *dancing*, &c.

"Fatigue is almost always complained of after violent paroxysms, and sometimes a general soreness is experienced. The heart and arteries appear to be no further affected by the disease, than what arises from the exercise of the body ; nor does any change take place in any of the secretions or excretions. It has not proved mortal in a single instance within my knowledge, but becomes lighter by degrees and finally disappears. In some cases, however, of long continuance it is attended with some degree of melancholia, which seems to arise entirely from the patient's reflection, and not directly from the disease.

"The state of the atmosphere has no influence over it, as it rages with equal violence in summer and in winter ; in moist and in dry air."

In the above examples, nervous disorders bearing a strong resemblance to those of the middle ages, are shown to exist in an *epidemic* form, both in Europe and America, at the present time ; but in these instances some general cause of mental excitement, and none is more powerful than religious enthusiasm, seems to have been requisite for their propagation. Their appearance, however, in *single cases*, is occasionally independent of any such origin, which leads to a belief not without support in the experiments of modern physiologists, that they occasionally proceed from physical causes, and that it is therefore not necessary to consider them in all cases as the offspring of a disordered imagination.

A well marked case of a disease approximating to the original Dancing Mania, is related by Mr. Kinder Wood, in the 7th volume of the Medico-chirurgical Transactions, p. 237. The patient, a young married woman, is described to have suffered from headache and sickness, together with involuntary motions of the eyelids, and most extraordinary contortions of the trunk and extremities, for several days, when the more remarkable symptoms began to manifest themselves, which are thus recorded :—

"February 26. Slight motions of the limbs came on in bed. She arose at nine o'clock, after which they increased, and became unusually severe. She was hurled from side to side of the couch-chair upon which she sat, for a considerable time, without intermission ; was sometimes instantaneously and forcibly thrown upon her feet, when she jumped and stamped violently. She had headache ; the eyelids were frequently affected, and she had often a sudden propensity to spring or leap upwards. The affection ceased about eleven o'clock in the forenoon, the patient being very much fatigued ; but they returned about noon, and a third time in the afternoon, when she was impelled into every corner of the room, and began to strike the furniture and doors violently with the hand, as she passed near them, the sound of which afforded her great satisfaction. The fourth attack was at night ; was very violent, and ended with sickness and vomiting. She went to bed at half-past eleven. Her nights were invaria-

bly good. The last three attacks were more violent than the former ones, but they continued only half an hour each.

“February 27. The attacks commenced in bed, and was violent but of short duration. When she arose about ten, she had a second attack, continuing an hour, except an interval of five minutes. She now struck the furniture more violently and more repeatedly. Kneeling on one knee, with the hands upon the back, she often sprung up suddenly and struck the top of the room with the palm of the hand. To do this, she arose fifteen inches from the floor, so that the family were under the necessity of drawing all the nails and hooks from the ceiling. She frequently danced upon one leg, holding the other with the hand, and occasionally changing the legs. In the evening, the family observed the blows upon the furniture to be more continuous, and to assume the regular time and measure of a musical air. As a strain or series of strokes was concluded, she ended with a more violent stroke or a more violent spring or jump. Several of her friends also at this time noticed the regular measure of the strokes, and the greater regularity the disease was assuming; the motions being evidently affected or in some measure modified by the strokes upon the surrounding bodies. She chiefly struck a small slender door, the top of a chest of drawers, the clock, a table, or a wooden skreen placed near the door. The affection ceased about nine o’clock when the patient went to bed.

“February 28. She arose very well at eight. At half-past nine the motions recommenced; they were now of a more pleasant nature; the involuntary actions, instead of possessing their former irregularity and violence, being changed into a measured step over the room, connected with an air, or series of strokes, and she beat upon the adjacent bodies as she passed them. In the commencement of the attack, the lips moved as if words were articulated, but no sound could be distinguished at this period. It was curious indeed to observe the patient at this time, moving around the room with all the vivacity of the country dance, or the graver step of the minuet, the arms frequently carried not merely with ease, but with elegance. Occasionally all the steps were so direct as to place the foot constantly where the stone flags joined to form the floor, particularly when she looked downwards. When she looked upwards, there was an irresistible impulse to spring up to touch little spots or holes in the top of the ceiling; when she looked around, she had a similar propensity to dart the forefinger into little holes in the furniture, &c. One hole in the wooden skreen received the point of the forefinger many hundred times, which was suddenly and involuntarily darted into it with an amazing rapidity and precision. There was one particular part of the wall to which she frequently danced, and there placing herself with the back to it, stood two or three minutes. This by the family was called ‘*the measuring place*.’

“In the afternoon the motions returned and proceeded much as in the morning. At this time a person present surprised at the manner in which she beat upon the doors, &c., and thinking he recognised

the air, without further ceremony began to sing the tune ; the moment this struck her ears, she turned suddenly to the man, and dancing directly up to him, continued doing so till he was out of breath. The man now ceased a short time, when commencing again, he continued till the attack stopped. The night before this, her father had mentioned his wish to procure a drum, associating this dance of his daughter with some ideas of music. The avidity with which she danced to the tune when sung as above stated, confirmed this wish, and accordingly a drum and fife were procured in the evening. After two hours of rest, the motions again reappeared, when the drum and fife began to play the air to which she had danced before, viz. the ' Protestant Boys,' a favourite popular air in this neighbourhood. In whatever part of the room she happened to be, she immediately turned and danced up to the drum, and as close as possible to it, and there she danced till she missed the step, when the involuntary motions instantly ceased. The first time she missed the step in five minutes; but again rose, and danced to the drum two minutes and a half by her father's watch, when, missing the step, the motions instantly ceased. She rose a third time, and missing the step in half a minute, the motions immediately ceased. After this, the drum and fife commenced as the involuntary actions were coming on, and before she rose from her seat ; and four times they completely checked the progress of the attack, so that she did not rise upon the floor to dance. At this period the affection ceased for the evening.

" March 1. She arose very well at half-past seven. Upon my visit this morning, the circumstances of the preceding afternoon being stated, it appeared clear to me, that the attacks had been shortened. Slow as I had seen the effects of medicine in the comparatively trifling disease of young females, I was very willing that the family should pursue the experiment, whilst the medical means were continued.

" As I wished to see the effect of the instrument over the disease, I was sent for at noon, when I found her dancing to the drum, which she continued to do for half an hour without missing the step, owing to the slowness of the movement. As I sat counting the pulse, which I found to be 120, in the short intervals of an attack, I noticed motions of the lips, previous to the commencement of the dance, and placing my ear near the mouth I distinguished a tune. After the attack, of which this was the beginning, she informed me, in answer to my inquiry, that there always was a tune dwelling upon her mind, which at times becoming more pressing, irresistibly impelled her to commence the involuntary motions. The motions ceased at four o'clock.

" At half-past seven the motions commenced again, when I was sent for. There were two drummers present, and an unbraced drum was beaten till the other was braced. She danced regularly to the unbraced drum, but the moment the other commenced she instantly ceased. As missing the time stopped the affections, I wished the measure to be changed during the dance, which stopped the attack. It also ceased upon increasing the rapidity of the beat, till she could

no longer keep time ; and it was truly surprising to see the rapidity and violence of the muscular exertion, in order to keep time with the increasing movement of the instrument. Five times I saw her sit down the same evening, at the instant that she was unable to keep the measure ; and in consequence of this I desired the drummers to beat one continued roll instead of a regular movement. She arose and danced five minutes, when both drums beat a continued roll ; the motions instantly stopped, and the patient sat down. In a few minutes the motions commencing again, she was suffered to dance five minutes, when the drums again began to roll, the effect of which was instantaneous ; the motions ceased, and the patient sat down. In a few minutes the same was repeated with the same effect. It appeared certain that the attacks could now be stopped in an instant, and I was desirous of arresting them entirely, and breaking the chain of irregular associations which constituted the disease. As the motions at this period always commenced in the fingers, and propagated themselves along the upper extremities to the trunk, I desired the drummers, when the patient arose to dance, to watch the commencement of the attack, and roll the drums before she arose from the chair. Six times successively the patient was hindered from rising, by attending to the commencement of the affection ; and before leaving the house, I desired the family to attend to the commencement of the attacks, and use the drum early.

“March 2. She arose at seven o’clock, and the motions commenced at ten ; she danced twice before the drummer was prepared, after which she attempted to dance again four several times ; but one roll of a well-braced drum hindered the patient from leaving her seat, after which the attacks did not recur. She was left weakly and fatigued by the disease, but with a good appetite. In the evening of this day an eruption appeared, particularly about the elbows, in diffused patches of a bright red colour, which went off on the third day.”

Other cases might be adduced (see 23d vol. of the *Edinburgh Medical and Surgical Journal*, p. 261. ; 31st vol. of ditto, p. 299 ; 5th vol. of the *Medico-Chirurgical Transactions*, p. 1 to 23, &c.), but as there is none more striking than this, they would unnecessarily swell this number of the appendix, which has already extended to an undue length.

VI.
MUSIC
FOR THE DANCE OF THE TARANTATI.

FROM ATHAN. KIRCHER.

(Magness. de Arte magnetica. Rom. 1654. fol. p. 591.—Repeated in Sam. Haf-
enreffer, Nosodochium, in quo cutis affectus traduntur. Ulm. 1660. 8vo.
p. 485.)

I. *Primus modus Tarantella.*

Si re - pli - ca piu volte.

II. *Secundus modus.*

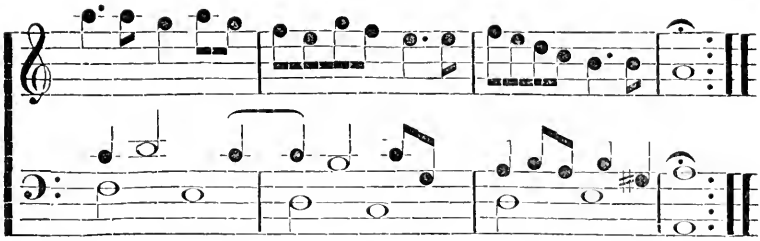
Si re - pli - ca piu volte.

III. *Tertius modus.*

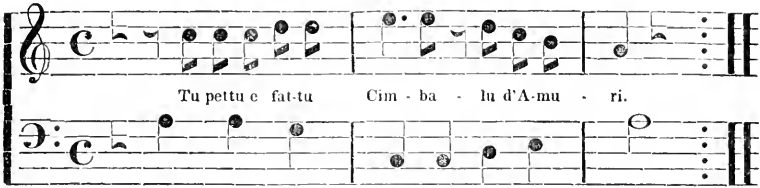
Si re - pli - ca piu volte.

IV. *Antidotum Tarantulae.*

Si re - pli - ca piu volte.



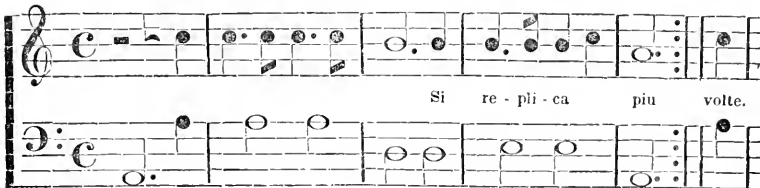
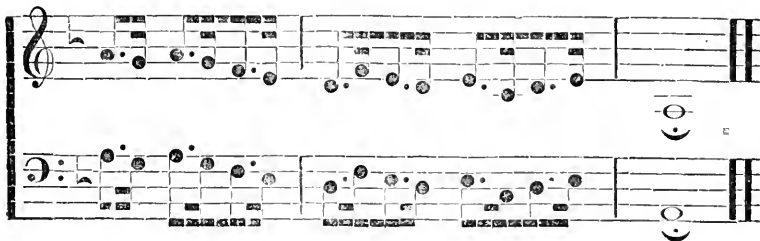
V.

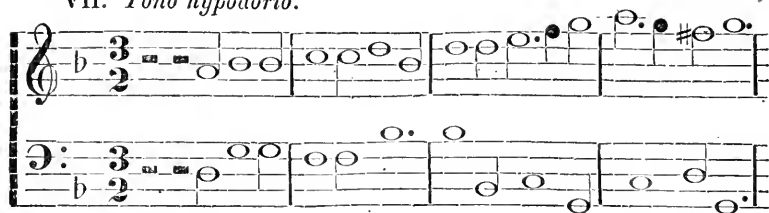
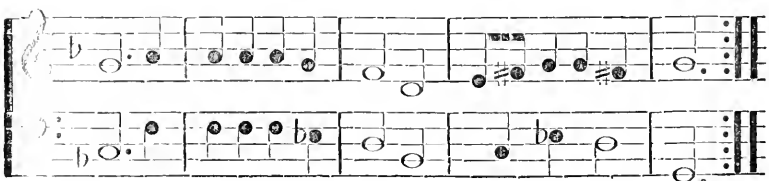


Stu pettu è fattu Cimbalo d'Amuri :
 Tasti li sensi mobili, e accorti :
 Cordi li chianti, sospiri, e dulari :
 Rosa è lu Cori miu feritu à morti :
 Strali è lu ferru, chiai so li miei arduri :
 Marteddu è lu pensieri, e la mia sorti :
 Mastra è la Donna mia, ch' à tutti l'huri
 Cantando canta leta la mia morti.

Some strophes, which are no longer extant, were usually sung between these and the following lines :—

Allu mari mi portati,
 Se voleti che mi sanati.
 Allu mari, alla via :
 Così m'ama la Donna mia.
 Allu mari, allu mari :
 Mentre campo, t'aggio amari.

VI. *Tarantella.**Ritornello.*

VII. *Tono hypodorio.*VIII. *Alia clausula.*

THE END.

